

Related Pending Application	
Related Case Serial No:	09/982, 898
Related Case Filing Date:	10-22-01

WHAT IS CLAIMED IS:

1. A network management equipment for managing a network system including a plurality of stations, a communication line provided between said stations, and one or a plurality of nodes which are set in each of said station and connected to each other through said communication line,

said network management equipment comprising:

a display unit;

information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

information processing means for managing a state of occurrence of a failure in said network system based on said notification information acquired by said information acquiring means; and

display controlling means for displaying information processed by said display processing means on said display unit,

wherein said display controlling means displays an area map of an area in which said network system is set on said display unit;

displays on said area map a plurality of station icons respectively associated with said stations and a line associated with said communication line;

displays a plurality of said station icons in a display mode which varies depending on presence/absence

of a failure in each corresponding station; and

displays said line in a display mode which varies depending on presence/absence of a failure in said corresponding communication line.

5 2. The network management equipment according to claim 1, wherein said display controlling means displays on said area map a current time indicated by the universal time coordinated (Universal Time Coordinated: UTC) and a standard time of each area in
10 which a plurality of said stations are respectively set.

 3. A network management equipment for managing a network system including a plurality of nodes based on notification information transmitted from a plurality of said nodes, said network management equipment
15 comprising:

 a display unit;

 operating means for accepting click operations by a user;

 information acquiring means for acquiring
20 notification information including alarm information respectively transmitted from a plurality of said nodes; and

 display controlling means for displaying information processed by said information processing
25 means on said display unit,

 wherein said display controlling means displays a first button on a screen of said display unit;

displays a first window on said screen of said display unit when said first button is clicked by said operating means; and

5 displays a list of notification information acquired by said information acquiring means in said first window in a text format together with a plurality of attributes for characterizing each set of said notification information.

10 4. The network management equipment according to claim 3, wherein said display controlling means displays a second button on said screen of said display unit;

15 displays a second window on said screen of said display unit when said second button is clicked by said operating means;

displays an attribute specification section for arbitrary selecting and specifying a plurality of said attributes in said second window; and

20 selectively displays in said first window notification information having attributes specified in said attribute specification section.

25 5. The network management equipment according to claim 3, wherein said display controlling means displays a third button on said screen of said display unit;

displays a third window on said screen of said display unit when said third button is clicked by said

operating means;

displays in said third window a section for setting an order for displaying said attributes in said first window; and

5 rearranges an order of said attributes displayed in said first window in accordance with said order set in said section.

6. The network management equipment according to claim 3, wherein said display controlling means
10 displays a fourth button on said screen of said display unit;

displays a fourth window on said screen of said display unit when said fourth button is clicked by said operating means; and

15 displays in said fourth window a list of nodes which is targets of management by its own apparatus, and

wherein when one or more nodes among nodes displayed in said fourth window are specified by said
20 operating means, said information acquiring means masks alarm information included in notification information transmitted from said specified nodes.

7. The network management equipment according to claim 3, further comprising an alarm buzzer which
25 sounds under predetermined conditions; and

buzzer controlling means for controlling sounding of said alarm buzzer,

wherein said display controlling means displays a fifth button on said screen of said display unit;

displays a fifth window on said screen of said display unit when said fifth button is clicked by said operating means; and

displays in said fifth window a condition setting section for setting conditions for sounding said alarm buzzer; and

wherein said buzzer controlling means sounds said alarm buzzer under conditions set in said condition setting section in said fifth window.

8. A network management equipment provided to a network system including a plurality of ring networks having a plurality of nodes connected to each other in a ring form through a communication line, said network management equipment comprising:

a display unit;

information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

information processing means for managing an occurrence state of a failure in said network system based on said notification information acquired by said information acquiring means; and

display controlling means for displaying information processed by said information processing means on said display unit,

wherein said display controlling means displays a sixth button on a screen of said display unit;

displays a sixth window on said screen of said display unit when said sixth button is clicked by said operating means;

displays in said sixth window a plurality of headers respectively associated with a plurality of said ring networks;

displays a plurality of said headers in a display mode which varies depending on presence/absence of a failure in respective corresponding ring networks;

displays in said sixth window a view showing a configuration of a ring network corresponding to any header clicked by said operating means when said header is clicked by said operating means; and

displays a plurality of nodes shown in said view of said configuration of said ring network in display modes which differ from each other depending on presence/absence of a failure in said each node.

9. The network management equipment according to claim 8, wherein when each of said nodes includes a plurality of shelves,

said display controlling means displays a seventh window on said screen of said display unit when any node shown in said type drawing is clicked by said operating means;

displays a type drawing showing a shelf

configuration of said clicked node in said seventh window; and

displays a plurality of shelves shown in said type drawing in display modes which differ from each other depending on presence/absence of a failure in said each shelf.

10. A network management equipment for managing a network system including a plurality of stations, a communication line provided between said stations, and one or a plurality of nodes which are respectively provided in said stations and connected to each other through said communication line, said network management equipment comprising:

a display unit;

operating means for accepting first and second click operations different from each other by a user;

information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

information processing means for managing an occurrence state of a failure in said network system based on said notification information acquired by said information acquiring means; and

display controlling means for displaying information processed by said information processing means on said display unit,

wherein said display controlling means displays a

plurality of station icons respectively associated with said stations on a screen of said display unit;

displays a plurality of said station icons in a display mode which varies depending on presence/absence
5 of a failure in each corresponding station;

displays an eighth window on said screen of said display unit when any one of said station icons is clicked by said first click operation of said operating means;

10 displays in said eighth window one or a plurality of node icons respectively associated with said nodes set in a station corresponding to said clicked station icon; and

displays one or a plurality of said node icons in
15 a display mode which varies depending on presence/absence of a failure in each corresponding node.

11. The network management equipment according to claim 10, wherein when each of said nodes includes a
20 plurality of shelves,

said display controlling means displays on said screen of said display unit a ninth window when any node icon displayed in said eighth window is clicked;

displays a type drawing showing a shelf
25 configuration of said clicked node in said ninth window; and

displays a plurality of shelves shown in said type

drawing in display modes which differ from each other depending on presence/absence of a failure in each of said shelves.

5 12. The network management equipment according to claim 10, wherein when each of said nodes includes a plurality of shelves,

10 said display controlling means displays a tenth window on said screen of said display unit when any of said station icons is clicked by said second click operation of said operating means;

 displays in said tenth window a list of nodes set in a station corresponding to said clicked station icon;

15 displays a ninth window on said screen of said display unit when any node shown in said list is selected by said operating means;

 displays in said ninth window a type drawing showing a shelf configuration of said selected node; and

20 displays a plurality of shelves shown in said type drawing in display modes which differ from each other depending on presence/absence of a failure in each of said shelves.

25 13. The network management equipment according to claim 9, wherein when each of a plurality of said shelves includes one or a plurality of cards,

 said display controlling means displays an 11th

window on said screen of said display unit when any one of a plurality of said shelves shown in said type drawing is clicked by said operating means;

5 displays a view showing a card configuration of said clicked shelf in said 11th window; and

displays a plurality of cards shown in said view of said card configuration in display modes which differ from each other depending on presence/absence of a failure in each of said cards.

10 14. A network management equipment provided in a network system including a plurality of ring networks,

each of a plurality of ring networks including a plurality of nodes and a traffic bypass function,

15 a plurality of said nodes being connected to each other in a ring form through a communication line,

said communication line including a working system line and a preliminary system line, and

20 said traffic bypass function being a function which causes service traffic transmitted through said working system line to make a detour to said preliminary line, and being a function which enters either an active status or a normal status,

said network management equipment comprising:

a display unit;

25 information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

information processing means for managing statuses of said traffic bypass function in said network system based on said notification information acquired by said information acquiring means; and

5 display controlling means for displaying information processed by said information processing means on said display unit,

 wherein said display controlling means displays a seventh button on a screen of said display unit;

10 displays a 12th window on said screen of said display unit when said seventh button is clicked by said operating means;

 displays in said 12th window a plurality of icons respectively associated with a plurality of said ring networks;

15 displays a plurality of said icons in a display mode which varies depending on said active status or said normal status which said traffic bypass function in said each corresponding ring network enters; and

20 displays a plurality of said icons in a display mode which varies depending on whether said status of said traffic bypass function in said each corresponding ring network has been confirmed by an operator of its own apparatus.

25 15. The network management equipment according to claim 14, wherein said display control button displays in a blinking manner an icon corresponding to a ring

network that said status of said traffic bypass
function has not been confirmed; and

displays in a lit manner an icon corresponding to
a ring network that said status of said traffic bypass
5 function has been confirmed.

16. A network management equipment for managing a
network system including a plurality of nodes based on
notification information transmitted from a plurality
of said nodes, said network management equipment
10 comprising:

a display unit;

information acquiring means for acquiring
notification information respectively transmitted from
a plurality of said nodes;

15 storing means for accumulating a history of said
notification information acquired by said information
acquiring means;

information processing means for managing said
network system based on said notification information
20 acquired by said information acquiring means; and

display controlling means for displaying
information processed by said information processing
means on said display unit,

wherein said display controlling means displays a
25 13th window on a screen of said display unit; and

displays in said 13th window a retrieval condition
specification section for specifying retrieval

conditions for retrieving desired notification
information from said history accumulated in said
storing means,

wherein said information processing means
5 retrieves from said history accumulated in said storing
means notification information according to retrieval
conditions specified in said 13th window,

wherein said display controlling means displays a
14th window on said screen of said display unit; and
10 displays in said 14th window notification
information retrieved by said information processing
means in a text format together with a plurality of
attributes for characterizing said retrieved
notification information.

15 17. The network management equipment according to
claim 16, further comprising operating means for
accepting click operations by a user,

wherein said display controlling means displays an
eighth button on said screen of said display unit;

20 displays a 15th window on said screen of said
display unit when said eighth button is clicked by said
operating means;

displays in said 15th window an attribute
specification section for arbitrarily selecting and
25 specifying a plurality of said attributes; and

selectively displays in said 14th window
notification information having attributes specified in

said attribute specification section.

18. The network management equipment according to claim 17, wherein said display controlling means displays a 16th window on said screen of said display unit when arbitrary notification information is clicked
5 by said operating means in said 14th window; and

displays in said 16th window a section for causing an operator of its own apparatus to input memo data written in connection with said clicked notification
10 information, and

wherein said information processing means gives said memo data inputted in said 16th window to said clicked notification information.

19. The network management equipment according to claim 16, further comprising operating means for
15 accepting click operations by a user,

wherein said display controlling means displays a ninth button on said screen of said display unit;

displays a 17th window on said screen of said display unit when said 9th button is clicked by said
20 operating means; and

displays in said 17th window:

a section for selectively specifying allowance or inhibition of writing new notification information with
25 respect to a history accumulated in said storing means;

a section for specifying either overwriting of new notification or abortion of writing of new notification

when a storage area in said storing means is full;

a section for specifying a maximum number of histories accumulated in said storing means; and

a section for setting a threshold value of a ratio
5 of a storage area in which said histories in said storing means are accumulated, and

wherein said information processing means accumulates said histories in said storing means in accordance with contents set in said 17th window; and

10 generates an alarm to an operator of its own apparatus when a ratio of said storage area in which said histories in said storing means are accumulated may exceed said threshold value.

20. The network management equipment according to
15 claim 16, further comprising operating means for accepting click operations by a user,

wherein said display controlling means displays a 10th button on said screen of said display unit;

displays an 18th window on said screen of said
20 display unit when said 10th button is clicked by said operating means; and

displays in said 18th window:

a section for specifying a node as an operation target and setting a maximum value of a size of a
25 storage resource area for a history accumulated in said node; and

a section for individually setting a size of a

storage resource area of a notification information history to be accumulated, and

wherein said information processing means varies a size of a storage resource area for said history in an arbitrary node in accordance with contents set in said 18th window.

21. A network management equipment for managing a network system including a plurality of nodes based on notification information transmitted from a plurality of said nodes, said network management equipment comprising:

a display unit;

information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

storing means for accumulating a history of said notification information acquired by said information acquiring means;

information processing means for managing said network system based on said notification information acquired by said information acquiring means; and

display controlling means for displaying information processed by said information processing means on said display unit,

wherein said display controlling means displays an 11th button on a screen of said display unit;

displays a 19th window on said screen of said

display unit when said 11th button is clicked by said operating means; and

displays in said 19th window a retrieval condition specification section for specifying retrieval
5 conditions for retrieving desired notification information from a history accumulated in said storing means,

wherein said information processing means retrieves notification information satisfying said
10 retrieval conditions specified in said 13th window from said history accumulated in said storing means, and

wherein said display controlling means displays a 20th window on said screen of said display unit; and

graphs out and displays a result of retrieval of
15 notification information by said information processing means in said 20th window.

22. The network management equipment according to claim 21, wherein said display controlling means displays in said 20th window a plurality of graphs
20 which differ in accordance with each object of retrieval specified under said retrieval conditions.

23. The network management equipment according to claim 21, wherein said display controlling means displays a marker which can move on a horizontal axis
25 of each graph displayed in said 20th window; and

displays a data value on a vertical axis corresponding to a position of said marker on said

horizontal axis by a numeric figure.

24. The network management equipment according to claim 21, wherein said display controlling means varies a vertical axis scale of a graph displayed in said 20th window in accordance with a maximum value of data to be displayed or in accordance with setting by a user.

25. The network management equipment according to claim 21, wherein said display controlling means displays 12th buttons in accordance with each graph displayed in said 20th window;

displays a 21st window on said screen of said display unit when any one of said 12th button is clicked by said operating means; and

opens said 21st window which displays in a table form a result of retrieval of said quality information shown in a graph concerning said clicked 12th button.

26. The network management equipment according to claim 21, wherein said display controlling means displays a 22nd window on said screen of said display unit when arbitrary notification information is clicked by said operating means in said 21st window; and

displays in said 22nd window a section for causing an operator of its own apparatus to input memo data which is written in connection with said clicked notification information, and

wherein said information processing means gives said memo data inputted in said 22nd window to said

clicked notification information.

27. The network management equipment according to claim 21, further comprising printout means,

5 wherein said display controlling means displays a 13th button on said screen of said display unit;

displays a 23rd window on said screen of said display unit when said 13th button is clicked by said operating means; and

displays in said 23rd window:

10 a period specification section for specifying any of daily basis, monthly basis, or annual basis as a retrieval period of quality information; and

a quality information attribute specification section for specifying attributes of quality
15 information to be retrieved, and

wherein said information processing means retrieves desired quality information from a history of said accumulated quality information in accordance with a content specified in said 23rd window; and

20 prints out a result of retrieval to said printout means.

28. The network management equipment according to claim 21, wherein said display controlling means displays a 14th button on said screen of said display
25 unit;

displays a 24th window on said screen of said display unit when said 14th button is clicked by said

operating means; and

displays in said 24th window:

an operation target specification section for
specifying a node as an operation target, and a channel
5 and a section thereof;

a section for specifying whether quality
information measured for said operation target
specified in said operation target specification
section is to be notified in accordance with each type
10 thereof;

a section for setting an importance level of
quality information measured for said operation target
specified in said operation target specification
section in accordance with each type thereof; and

15 a section for setting a threshold value used for
notifying quality information measured for said
operation target specified in said operation target
specification section, and

wherein said information processing means notifies
20 a node as said operation target of a content specified
in said 24th window, and notifies said node of quality
information in accordance with said content.

29. A network management equipment for managing a
network system including a plurality of nodes based on
notification information transmitted from a plurality
25 of said nodes, said network management equipment
comprising:

a display unit;

information acquiring means for acquiring
notification information respectively transmitted from
a plurality of said nodes;

5 information processing means for managing an
occurrence state of an alarm in said network system
based on said notification information acquired by said
information acquiring means; and

 display controlling means for displaying
10 information processed by said information processing
means on said display unit,

 wherein said display controlling means displays a
16th button on a screen of said display unit;

 displays a 26th window on said screen of said
15 display unit when said 16th button is clicked by said
operating means; and

 displays in said 26th window:

 a first section for specifying an operation target
of severity of said alarm; and

20 a second section for selecting an occurrence
factor of said alarm for said operation target
specified in said first section;

 reads a current set state of severity of said
specified alarm occurrence factor with respect to a
25 node including said operation target and displays a
list of read results in accordance with each occurrence
factor when said operation target and said alarm

occurrence factor are specified in said 26th window,
and

wherein said information processing means
individually sets severity for an operator of its own
apparatus in accordance with each alarm occurrence
factor displayed in a list in said 26th window; and

sets severity of each set alarm occurrence factor
with respect to said node of said operation target.

30. The network management equipment according to
claim 29, wherein said display controlling means
displays a 17th button on said screen of said display
unit;

displays a 27th window on said screen of said
display unit when said 17th button is clicked by said
operating means; and

displays in said 27th window:

a node selection section for causing an operator
of its own apparatus to select a node as an operation
target; and

an operation mode specification section for
causing an operator of its own apparatus to specify an
operation mode of said node selected in said node
selection section to either a maintenance state mode or
a non-maintenance state mode, and

wherein said information processing means sets
said operation mode specified in said operation mode
specification section with respect to said node

selected by said node selection section.

31. The network management equipment according to claim 29, wherein said display controlling means displays an 18th button on said screen of said display unit;

displays a 28th window on said screen of said display unit when said 18th button is clicked by said operating means; and

displays in said 28th window:

a section for causing an operator of its own apparatus to specify a node as an operation target and shelves thereof, and set transmission or non-transmission of a maintenance signal to said specified operation target, and

wherein said information processing means sets a content set in said 28th window with respect to a node including said operating target.

32. The network management equipment according to claim 29, wherein said display controlling means displays a 19th button on said screen of said display unit;

displays a 29th window on said screen of said display unit when said 19th button is clicked by said operating means;

displays in said 29th window a section for causing an operator of its own apparatus to specify a node as an operation target and shelves thereof, and set a

threshold value of an alarm indicative of signal
quality degradation with respect to said specified
operation target; and

5 sets said threshold value determined in said
section with respect to a node including said operation
target.

33. A network management equipment provided in a
network system including a plurality of ring networks,

10 each of a plurality of said ring networks
including a plurality of nodes and a traffic bypass
function,

a plurality of said nodes being connected with
each other in a ring form through a communication line
in which a plurality of paths are multiplexed,

15 said communication line including a working system
line and a preliminary system line,

said traffic bypass function is a function for
causing service traffic transmitted through said
working system line to make a detour to said

20 preliminary system line,

said network management equipment comprising:
a display unit;

information acquiring means for acquiring
notification information respectively transmitted from
25 a plurality of said nodes;

information processing means for managing a state
of said traffic bypass function in said network system

based on said notification information acquired by said information acquiring means; and

display controlling means for displaying information processed by said information processing means on said display unit,

wherein said display controlling means displays on a screen of said display unit a clickable button for displaying on said screen of said display unit a window for setting parameters concerning said traffic bypass function.

34. The network management equipment according to claim 33, wherein said display controlling means displays a 21st button on said screen of said display unit;

displays a 30th window on said screen of said display unit when said 21st button is clicked by said operating means;

and displays in said 30th window a section for causing an operator of its own apparatus to specify a transmission interval as an operation target and set values of said parameters concerning said traffic bypass function with respect to said specified operation target, and

wherein said information processing means sets values determined in said section with respect to a node concerning said operation target.

35. The network management equipment according to

claim 33, wherein said display controlling means displays a 22nd button on said screen of said display unit;

5 displays a 31st window on said screen of said display unit when said 22nd button is clicked by said operating means; and

displays in said 31st window a section for causing an operator of its own apparatus to specify a switching interval as an operation target, and setting forcible
10 switching with respect to said specified operation target, and

wherein said information processing means sets a switching state set in said 31st window with respect to a node concerning said operation target.

15 36. The network management equipment according to claim 33, wherein said display controlling means displays a 23rd button on said screen of said display unit;

displays a 32nd window on said screen of said
20 display unit when said 23rd button is clicked by said operating means;

displays in said 32nd window a set status of a path in said network system with selected ring network; and

25 divides a display area in said 32nd window in association with an interval between nodes belonging to said selected ring network, and displays in said

divided area an arrow associated with each path existing in said divided area.

37. The network management equipment according to claim 36, wherein said display controlling means
5 displays both a path as a symbol indicative of existence of a path and a current path indicative of a current state of said path.

38. The network management equipment according to claim 36, wherein said display controlling means
10 divides said divided area in said 32nd window into an area corresponding to a working system and an area corresponding to a preliminary system, displays a second arrow forming a pair with said arrow, and displays said second arrow in either said area
15 corresponding to said working system or said area corresponding to said preliminary system in accordance with a state of a path corresponding to said pair of arrows.

39. The network management equipment according to claim 36, wherein when a failure is generated in said
20 network system, said display controlling means displays a display mode of said divided area in said 32nd window corresponding to an interval of said failure in distinction from an area in which no failure is
25 generated.

40. The network management equipment according to claim 36, wherein said display controlling means

displays in said 32nd window a scroll button for scrolling a display content in said 32nd window.

41. The network management equipment according to claim 36, wherein said display controlling means
5 displays each identifier used for discriminating a path corresponding to said arrow in association with said arrow displayed in said 32nd window.

42. The network management equipment according to claim 36, wherein said display controlling means
10 displays information indicative of a position to which said path corresponding to said arrow displayed in said 32nd window is dropped in association with said arrow.

43. The network management equipment according to claim 42, wherein said information indicative of said
15 position to which said path is dropped includes at least a low-speed side channel number of a node to which said path is dropped and information indicative of a type of concatenation of said path.

44. The network management equipment according to claim 36, wherein said display controlling means
20 displays a diagnostics button on said screen of said display unit; and

displays a 33rd window on said screen of said display unit when said diagnostics button is clicked by
25 said operating means,

wherein said information processing means diagnoses in accordance with each node whether a first

data base which is managed in accordance with each ring network and indicative of set statuses of all the paths which exist in said ring network is matched with a second data base which is managed in accordance with each node and indicative of the corresponding relationship between a high-speed side time slot and a low-speed side channel of said node,

wherein said display controlling means displays a 33rd window on said screen of said display unit; and

displays a result of diagnosis of matching of said first and second data bases diagnosed by said information processing means in said 33rd window, and

wherein said information processing means executes processing for matching said first and second data bases with respect to a node concerning said result of diagnosis when it is determined that said first and second data bases are not matched with each other.

45. The network management equipment according to claim 36, wherein said display controlling means specifies a node, and displays on said screen of said display unit a 24th button used for asking said specified node for a request for releasing a resource which is not used in said specified node.

46. The network management equipment according to claim 33, wherein said display controlling means displays on said screen of said display unit a 25th button for locking or unlocking the operation of said

traffic bypass function by an operator of its own apparatus.

47. The network management equipment according to claim 33, wherein said display controlling means
5 displays on said screen of said display unit a 26th function button for causing an operator of its own apparatus to specify a node and set how to take an operation clock in said specified node.

48. A communication path setting method in a
10 network management equipment with a display unit which is provided in a network system including a plurality of ring networks,

each of a plurality of said ring networks including a plurality of nodes connected to each other
15 in a ring form through a communication line in which a plurality of communication paths are multiplexed,

said method comprising:

a step of selecting any ring network, dividing a screen of said display unit into a plurality of areas
20 in association with intervals between nodes belonging to said selected ring network, and displaying in said divided areas each arrow corresponding to each communication path existing in said interval;

a first step of specifying a low-speed side
25 channel of a node as a start point of a communication path to be set on said screen;

a second step of specifying a low-speed side

channel of a node as an end point of said communication path to be set on said screen;

5 a third step of displaying an arrow associated with said communication path to be set in a display area corresponding to a node interval specified in said first and second steps;

a fourth step of repeating said first to third steps when there is any other communication path to be set;

10 a fifth step of transmitting a request for setting a communication path corresponding to said arrow associated with said communication path to be set to a node concerning formation of said communication path; and

15 a sixth step of causing a node which has accepted said request for setting said communication path to form a new communication path based on said request.

20 49. The communication path setting method according to claim 48, wherein said first and second steps also perform specification of a type of concatenation of said communication path to be set as well as specification of a low-speed side channel of a node.

25 50. The communication path setting method according to claim 49, wherein when said communication path to be set is a dual homing path, said method further comprises a seventh step of specifying a

low-speed side channel of a node as an intermediate drop point of said communication path to be set, and

wherein said first, second and seventh steps also perform setting of a node type in addition to

5 specification of a low-speed side channel of a node.

51. The communication path setting method according to claim 48, wherein said communication line includes a working system line and a preliminary system line, and

10 wherein when each of a plurality of said ring networks includes a traffic bypass function for causing service traffic transmitted through said working system line to make a detour to said preliminary system line, said sixth step includes:

15 an eighth step of causing a node which has accepted a request for setting a communication path to lock said traffic bypass function of its own apparatus;

a ninth step of forming a new communication path based on said request for setting a communication path
20 upon completion of said eight step; and

a tenth step of unlocking said traffic bypass function upon completion of said ninth step.

52. A network management equipment for managing a network system including a plurality of nodes having a
25 plurality of boards based on notification information transmitted from a plurality of said node, said network management equipment comprising:

a display unit;

operating means for accepting click operations by
a user;

information acquiring means for acquiring
5 notification information respectively transmitted from
a plurality of said nodes;

information processing means for managing said
network system based on said notification information
acquired by said information acquiring means; and

10 display controlling means for displaying
information processed by said information processing
means on said display unit,

wherein said display controlling means displays a
27th button on a screen of said display unit;

15 displays a 34th window on said screen of said
display unit when said 27th button is clicked by said
operating means; and

displays in said 34th window a section for causing
an operator of its own apparatus to select one of said
20 nodes existing in said network system and specify a
low-speed board of said selected node, and

wherein said information processing means deletes
said low-speed side board selected in said 34th window
from supervisory control targets of its own apparatus.

25 53. The network management equipment according to
claim 52, wherein said display controlling means
displays a 28th button on said screen of said display

unit;

displays a 35th window on said screen of said display unit when said 28th button is clicked by said operating means;

5 displays in said 35th window a section for causing an operator of its own apparatus to specify an arbitrary node and specify a type of notification information transmitted from said specified node, and

10 wherein said information processing means reads set states of destinations of said notification information specified in said 35th window from said specified node and displays a list of said set states in said 35th window;

15 causes a user to set allowance or inhibition of notification of said specified notification information with respect to said destinations displayed in said list; and

sets a content set in said 35th window with respect to said specified node.

20 54. A network management equipment provided in a network system including a plurality of nodes, said network management equipment comprising:

a display unit;

25 information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

information processing means for managing said

network system based on said notification information
acquired by said information acquiring means; and

display controlling means for displaying
information processed by said information processing
5 means on said display unit,

wherein said display controlling means displays a
29th button on a screen of said display unit;

displays a 36th window on said screen of said
display unit when said 29th button is clicked by said
10 operating means; and

displays a list of operators who are allowed to
login to its own apparatus in said 36th window while
associating a name of each operator with an expiration
date of a password and an access level of said operator.

15 55. The network management equipment according to
claim 54, wherein said display controlling means
displays a 30th button on said screen of said display
unit;

displays a 37th window on said screen of said
20 display unit when said 30th button is clicked by said
operating means; and

displays in said 37th window:

a section for causing an operator of its own
apparatus to input a name of said operator; and

25 a section for causing said operator to input a
password of said operator and an access level of said
operator, and

wherein said information processing means newly registers said operator inputted in said 37th window as a user who can login to its own apparatus.

5 56. The network management equipment according to claim 54, wherein said display controlling means displays a 31st button on said screen of said display unit;

displays a 38th window on said screen of said display unit when said 31st button is clicked by said
10 operating means; and

displays in said 38th window a section for causing an operator of its own apparatus to select an arbitrary node in said network system,

wherein said information processing means reads
15 names of network management equipments registered to said node selected in said 38th window from said selected node, and

wherein said display controlling means displays in said 38th window a list of said names of network
20 management equipments read by said information processing means.

57. The network management equipment according to claim 56, wherein said display controlling means displays a 32nd button on said screen of said display
25 unit;

displays a 39th window on said screen of said display unit when said 32nd button is clicked by said

operating means; and

display in said 39th window:

a section for causing an operator of its own
apparatus to select an arbitrary control apparatus in
5 said network system; and

a section for causing an operator of its own
apparatus to set an access level with respect to said
network management equipment selected in said section,
and

10 wherein said information processing means
determines said node selected in said 38th window as a
control target of said network management equipment
selected in said 39th window, and registers it together
with said selected access level.

15 58. A network management equipment provided in a
network system including a plurality of node, said
network management equipment comprising:

a display unit;

20 information acquiring means for acquiring
notification information respectively transmitted from
a plurality of said nodes;

information processing means for managing said
network system based on said notification information
acquired by said information acquiring means; and

25 display controlling means for displaying
information processed by said information processing
means on said display unit,

wherein said display controlling means displays a 33rd button on a screen of said display unit;

displays a 40th window on said screen of said display unit when said 33rd button is clicked by said operating means; and

displays in said 40th window:

a section for causing an operator of its own apparatus to select an arbitrary node in a network system;

a list of a current set state of an operation reference time of each node selected in said section; and

a section for causing a user to select an arbitrary apparatus from said list and causing a user to individually set an operation reference time with respect to said selected apparatus, and

wherein said information processing means sets said operation reference time set in said 40th window with respect to said selected node.

59. The network management equipment according to claim 58, wherein said display controlling means displays a 34th button on said screen of said display unit;

displays a 41st window on said screen of said display unit when said 34th button is clicked by said operating means; and

displays in said 41st window a section for causing

an operator of its own apparatus to select an arbitrary node in said network system,

wherein said information processing means reads version information of software installed in a node
5 selected in said 41st window and a date of installation of said software from said selected node, and

wherein said display controlling means displays in said 41st window said version information of said software read by said information processing means and
10 said date of installation of said software.

60. The network management equipment according to claim 58, wherein said display controlling means displays a 35th button on said screen of said display unit;

15 displays a 42nd window on said screen of said display unit when said 35th button is clicked by said operating means; and

displays in said 42nd window:

a section for causing an operator of its own
20 apparatus to select an arbitrary ring network in said network system; and

current names of nodes belonging to said ring network together with a type drawing of said ring network selected in said section, and

25 wherein when a name is newly given to a node arbitrarily selected in said 42nd window, said information processing means sets said name to said

corresponding node.

61. A network management equipment provided to a network system including a plurality of nodes, said network management equipment comprising:

5 a display unit;

 information acquiring means for acquiring notification information respectively transmitted from a plurality of said nodes;

 information processing means for managing said
10 network system based on said notification information acquired by said information acquiring means; and

 display controlling means for displaying information processed by said information processing means on said display unit,

15 wherein said display controlling means displays a 36th button on a screen of said display unit;

 displays a 43rd window on said screen of said display unit when said 36th button is clicked by said operating means; and

20 displays in said 43rd window:

 a color specification button in accordance with each state that an object displayed on said screen of said display unit can enter;

 a color pallet to cause an operator of its own
25 apparatus to set a display color of a state corresponding to said color specification button when said color specification button is arbitrarily clicked;

an object displayed on said screen of said display unit in a display color set in said color pallet.

ABSTRACT OF THE DISCLOSURE

A graphics map of an area in which a system is set is displayed on a screen of a display unit, and minimized stations and line connecting between the stations are displayed on the map. Display colors of the station icon and the line icon are changed in accordance with presence/absence of a failure. When each station icon is clicked, a window showing a list of NODEs belonging to that station is opened, and a NODE having a failure and a NODE having no failure are also distinguished from each other by changing the display colors in this window.

1/104

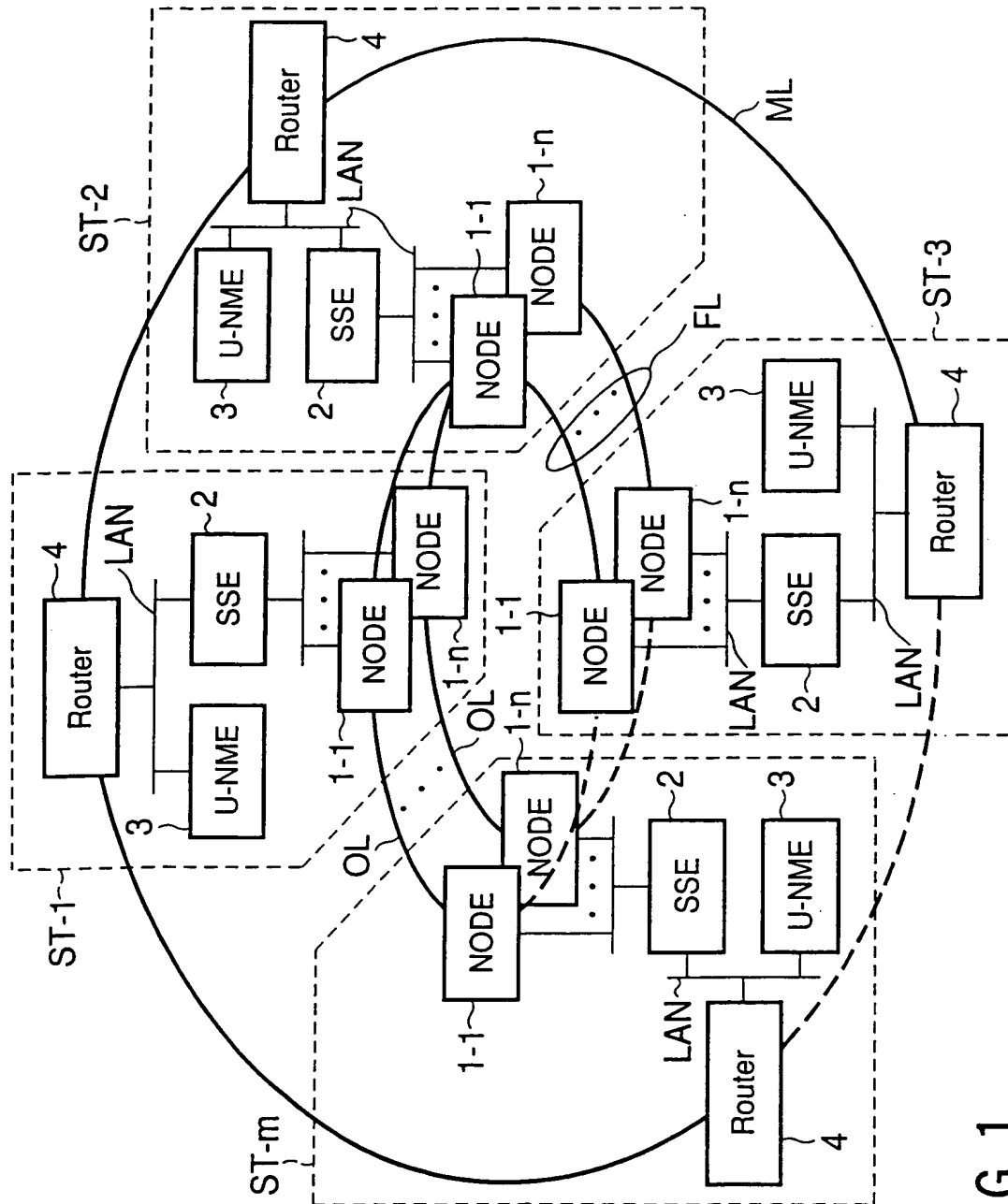


FIG.1

2/104

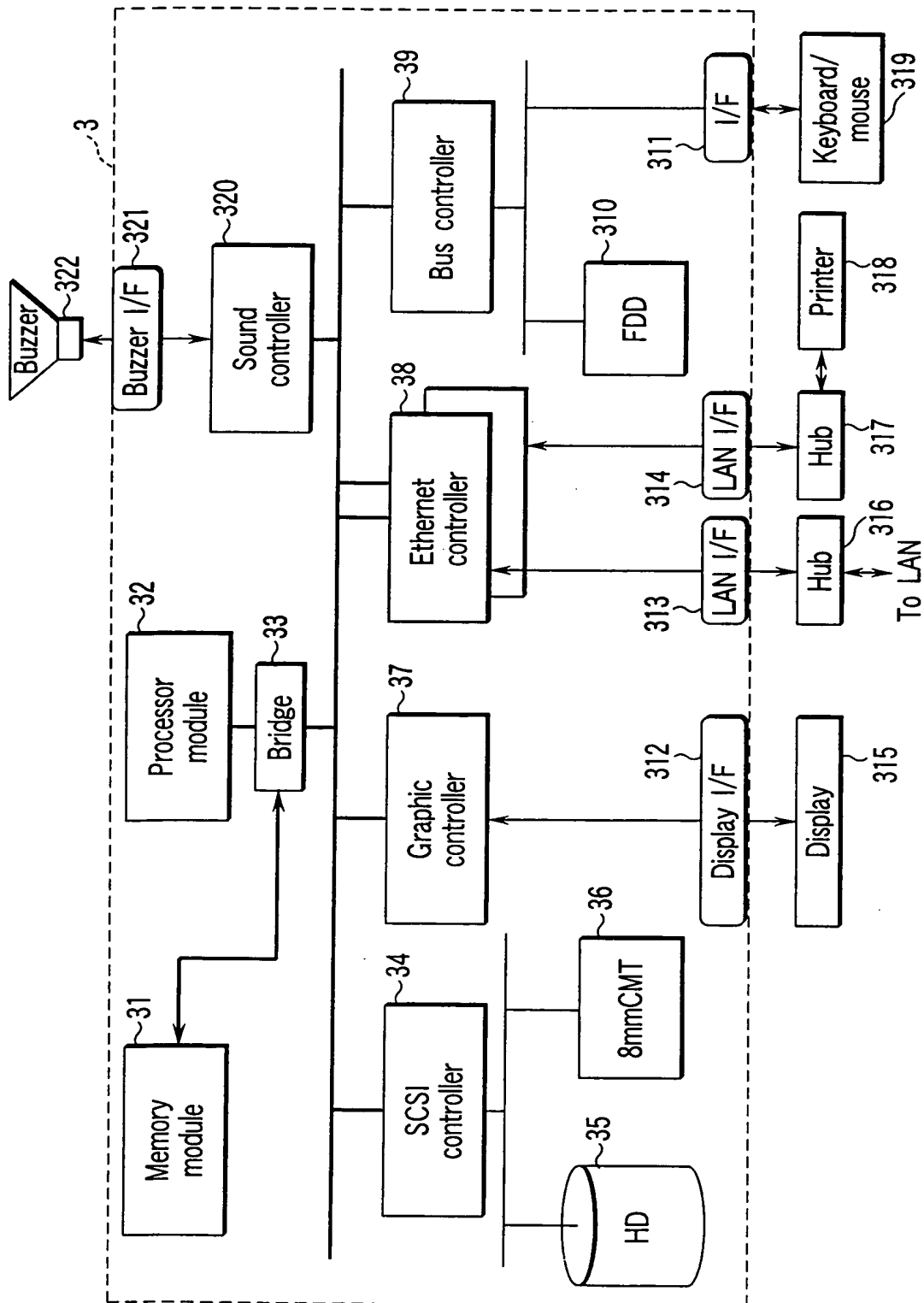


FIG. 2

3/104

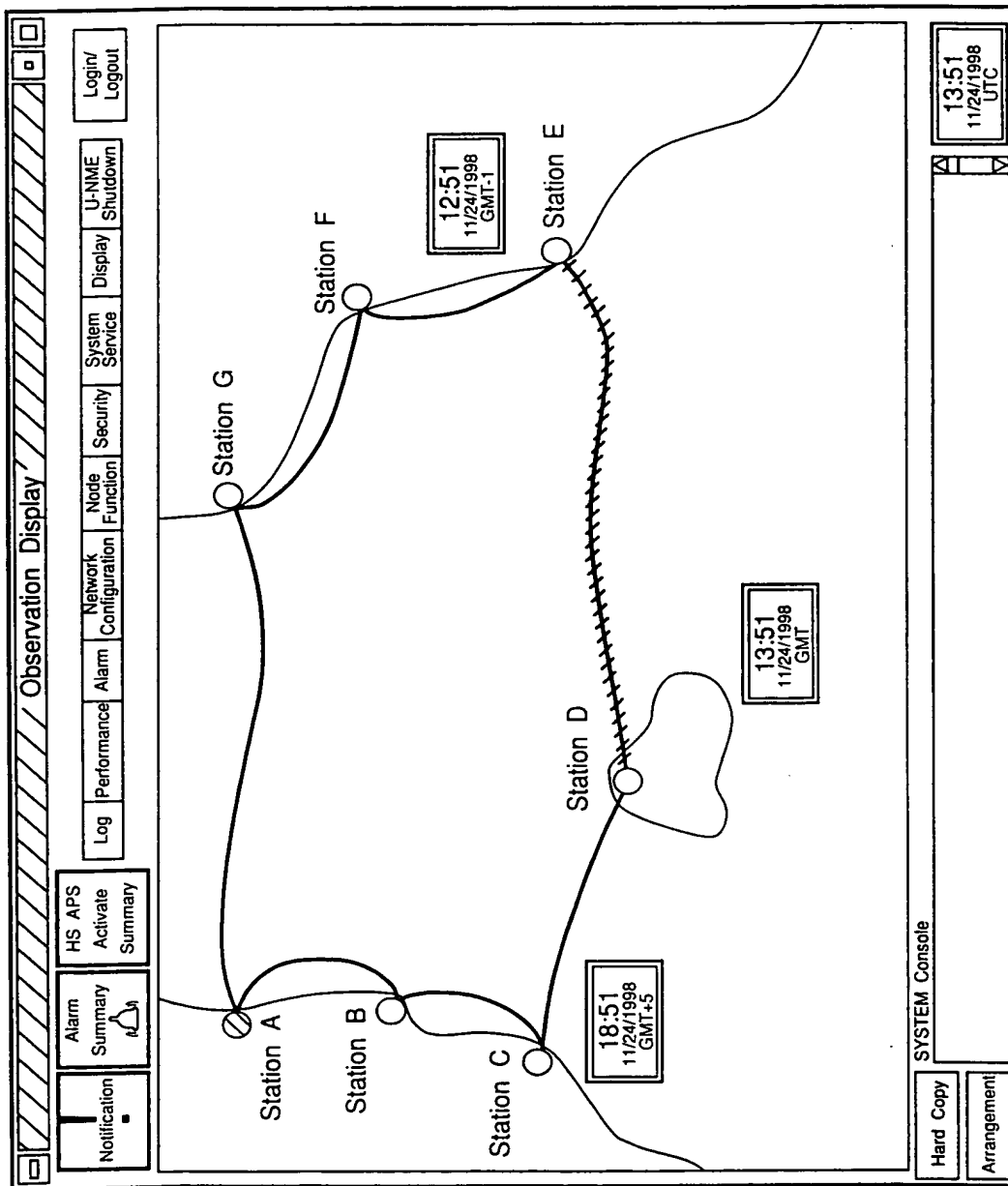
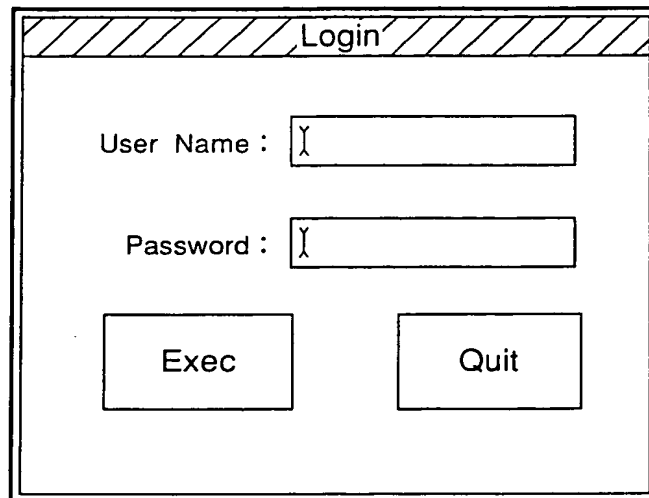


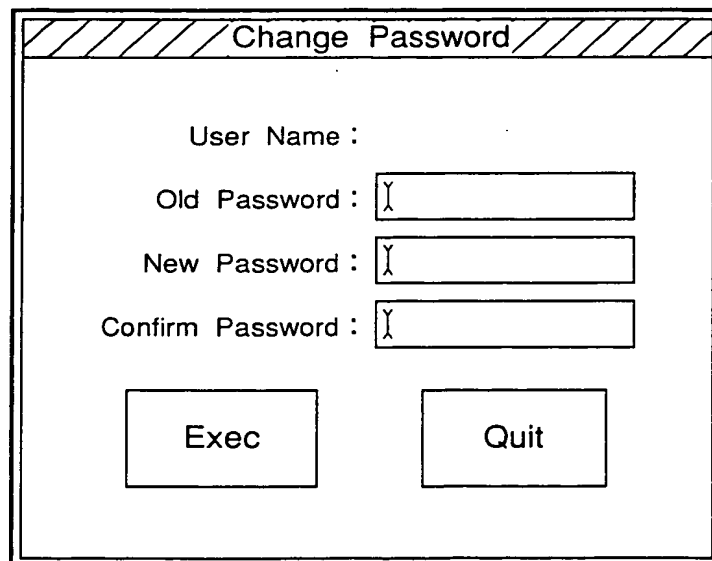
FIG.3

4/104



A rectangular dialog box with a title bar labeled "Login". Inside the box, there are two input fields. The first is labeled "User Name :" and the second is labeled "Password :". Each input field has a small cursor icon at the beginning. Below the input fields, there are two buttons: "Exec" on the left and "Quit" on the right.

FIG. 4



A rectangular dialog box with a title bar labeled "Change Password". Inside the box, there are four input fields. The first is labeled "User Name :". The second is labeled "Old Password :". The third is labeled "New Password :". The fourth is labeled "Confirm Password :". Each input field has a small cursor icon at the beginning. Below the input fields, there are two buttons: "Exec" on the left and "Quit" on the right.

FIG. 5

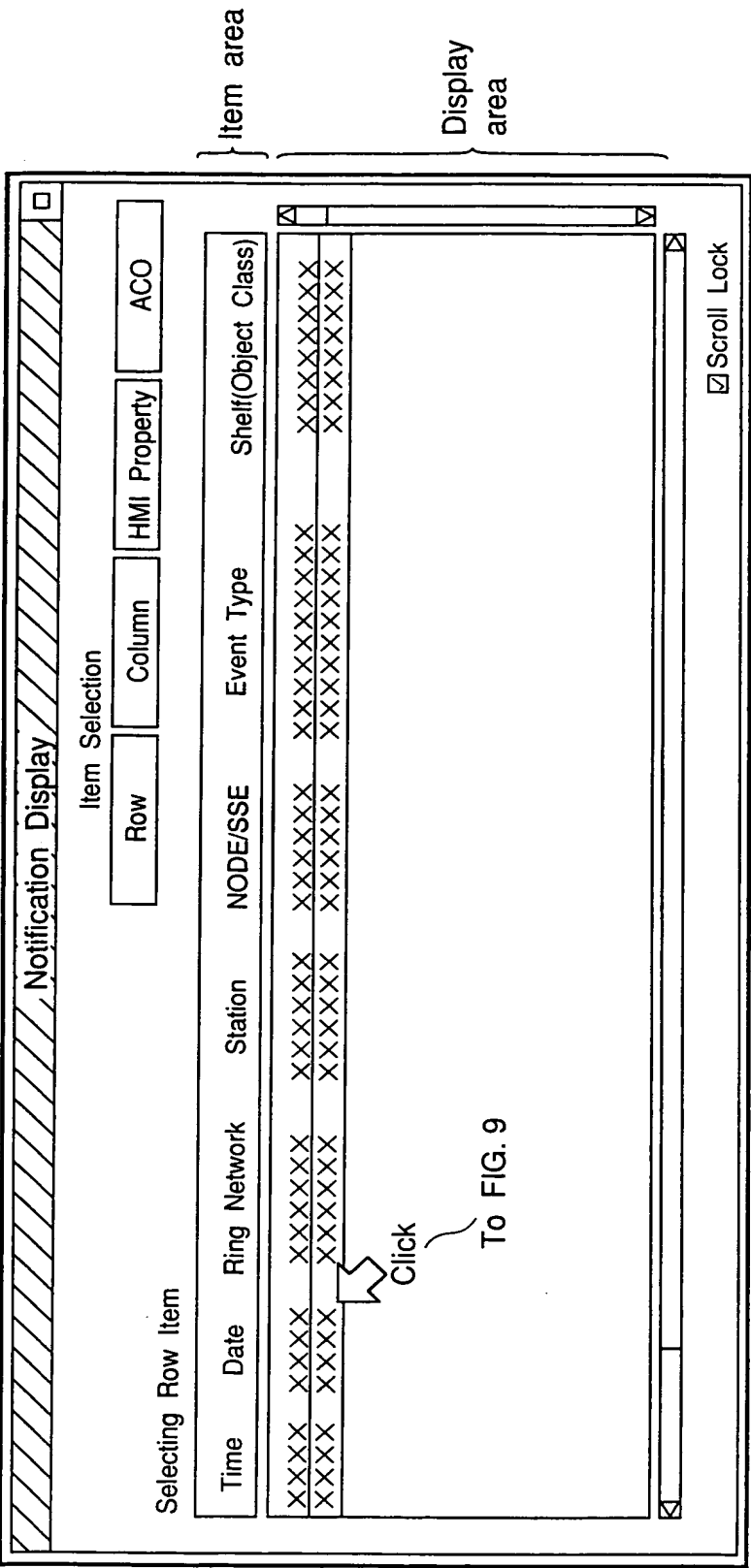


FIG. 6

6/104

Item Selection (Row)	
Ring Network:	<div>Ring Network #01</div> <div>Ring Network #02</div> <div>Ring Network #03</div> <div>Ring Network #04</div> <div>Ring Network #05</div>
Station:	<div>Station A</div> <div>Station B</div> <div>Station C</div> <div>Station D</div>
NODE/SSE:	<div>NODE #01</div> <div>NODE #02</div> <div>NODE #03</div> <div>NODE #04</div>
Event Type:	<div>Communication Alarm</div> <div>Quality of Service Alarm</div> <div>Equipment Alarm</div> <div>Environmental Alarm</div> <div>Security Alarm</div>
Shelf: (Object Class)	<div>FAN #1</div> <div>LS #1</div> <div>LS #2</div> <div>LS #3</div> <div>LS #4</div>
Card: (Object Instance)	<div>ECCM</div> <div>ECCR</div> <div>OS WEST</div> <div>OS EAST</div> <div>OR WEST</div>
<div>Exec</div> <div>Default</div> <div>Cancel</div>	

FIG. 7

Item Selection (Column)

Common Item

1

Alarm Notification:

2

State Change

Notification:

3

Protection Switch

Reporting Notification:

4

Security Alarm Notification:

5

☐ Data / Time

☐ Ring Network

☐ Station

☐ NODE / SSE

☐ Event Type

☐ Shelf (Object Class)

☐ Card (Object Instance)

☐ Notification ID

☐ Probable Cause

☐ Severity

☐ Specific Problems

☐ Triggered Threshold

☐ Observed Value

☐ Additional Text

☐ Attribute ID

☐ Protecting Unit

☐ Protection Direction

☐ Additional Text

☐ Security Alarm Cause

☐ Security Alarm Severity

☐ Security Alarm Detector

☐ Service User

☐ Service Provider

Exec

Cancel

FIG.8

Notification Detailed Display

Data Time : 1998-10-17 14:59:39

Ring Network : Ring Network #01

Station : Station A

NODE : NODE #01

Event Type : State Change

Shelf (Object Class) : sdhNE

Card (Object Instance) : NODE

Additional Text :

Value #####

(Old) :Not Maintenance

(New) :Maintenance

Quit

FIG. 9

9/104

The screenshot shows a window titled "Alarm Cut off" with a hatched title bar. Inside, there is a table with four columns: "Ring", "Network", "Station", and "NODE". The table contains seven rows of data. Below the table are two buttons labeled "Exec" and "Quit". At the bottom is a large text area labeled "Console".

Ring	Network	Station	NODE
Ring	Network #1	Station A	NODE #1
Ring	Network #2	Station A	NODE #2
Ring	Network #3	Station A	NODE #3
Ring	Network #4	Station A	NODE #4
Ring	Network #5	Station A	NODE #5
Ring	Network #6	Station A	NODE #6
Ring	Network #7	Station A	NODE #7

Exec Quit

Console

FIG. 10

The screenshot shows a window titled "U-NME Buzzer Stop" with a hatched title bar. Inside, there is a single button labeled "STOP".

STOP

FIG. 11

10/104


HMI Property			
Window Auto Open : [on] <input checked="" type="radio"/> on <input type="radio"/> off			
NME Buzzer : Communications Alarm	[on] <input checked="" type="radio"/> on <input type="radio"/> off	<input type="checkbox"/>	Critical
Equipment Alarm	[on] <input checked="" type="radio"/> on <input type="radio"/> off	<input type="checkbox"/>	Critical
Environmental Alarm	[on] <input checked="" type="radio"/> on <input type="radio"/> off	<input type="checkbox"/>	Critical
Quality of Service Alarm	[off] <input type="radio"/> on <input checked="" type="radio"/> off	<input type="checkbox"/>	Critical
Security Alarm	[off] <input type="radio"/> on <input checked="" type="radio"/> off	<input type="checkbox"/>	Critical
Object Creation	[off] <input type="radio"/> on <input checked="" type="radio"/> off		
Object Deletion	[off] <input type="radio"/> on <input checked="" type="radio"/> off		
Protection Switch Reporting	[off] <input type="radio"/> on <input checked="" type="radio"/> off		
State Change	[off] <input type="radio"/> on <input checked="" type="radio"/> off		
Volume Level : <input type="text" value="10"/> %  100%			
<input type="button" value="Clear Display"/>		<input type="button" value="Exec"/>	<input type="button" value="Quit"/>

FIG.12

11/104

Network Alarm Summary Display							
All	Ring Network	Station	NODE	Shell	Card	Probable Cause	Severity
Ring Network #01	#####	####	#####	####	####	#####	####
Ring Network #02	#####	####	#####	####	####	#####	####
Ring Network #03							
Ring Network #04							
Ring Network #05							
Ring Network #06							
Ring Network #07							
Ring Network #08							
Ring Network #09							
Ring Network #10							
Ring Network #11							
Ring Network #12							
Ring Network #13							
Ring Network #14							
Ring Network #15							
Ring Network #16							
Ring Network #17							
Ring Network #18							
Ring Network #19							
Ring Network #20							
Ring Network #21							
Ring Network #22							
Ring Network #23							
Ring Network #24							
Ring Network #25							
Ring Network #26							
Ring Network #27							
Ring Network #28							
Ring Network #29							
Ring Network #30							
Ring Network #31							
Ring Network #32							

Tab

Display Tab

FIG.13

12/104

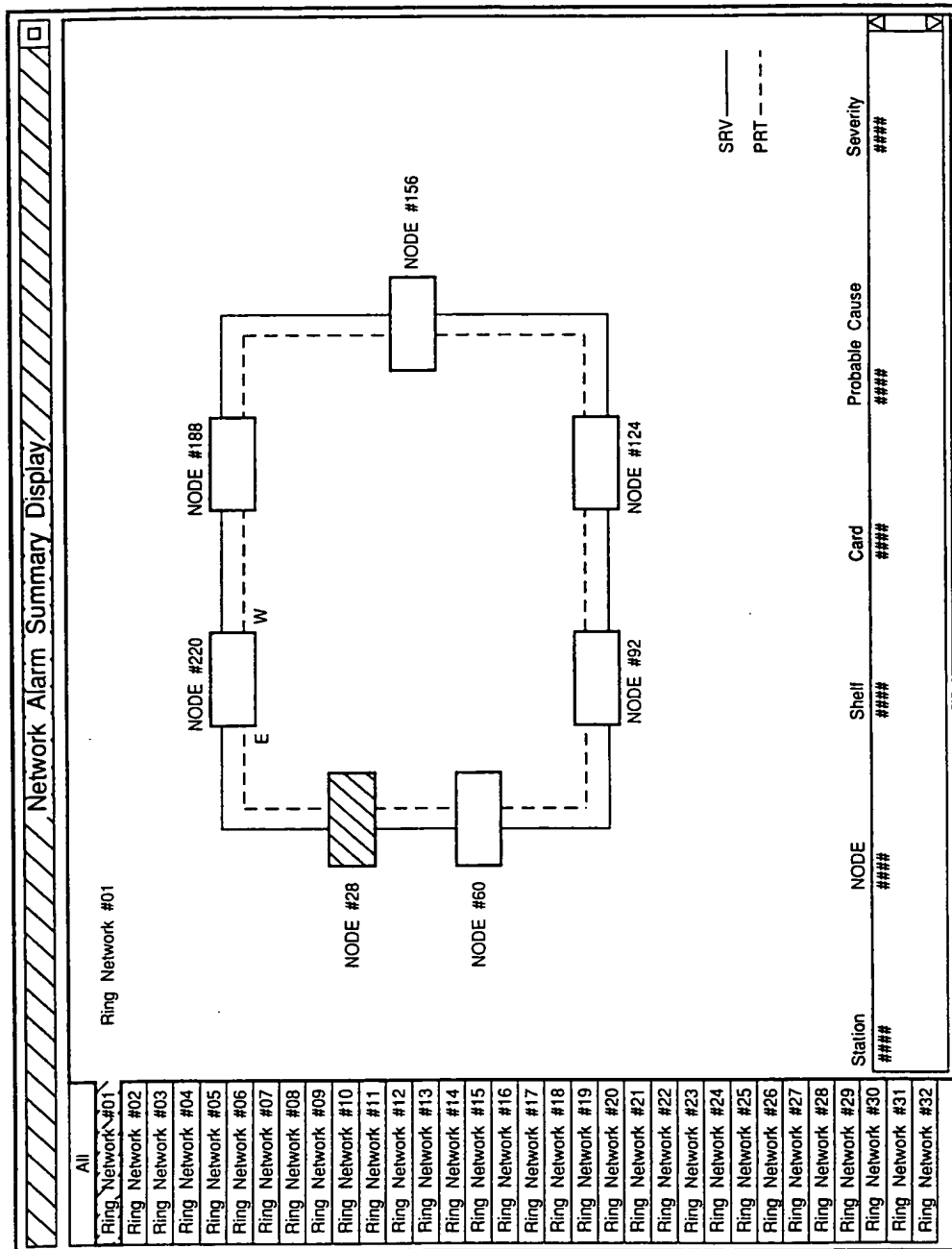


FIG.14

13/104

NODE Alarm Summary Display																			
Shelf	Card	Probable Cause	Severity																
###	###	###	###																
<div><div><div>Ring Network : Ring Network #01</div><div>Station : Station A</div><div>NODE : NODE #28</div></div><div><div>NODE CONF</div><div><table><tr><td>FAN #1</td><td>FAN #1</td></tr><tr><td>LS #1</td><td>HS SRV</td></tr><tr><td>LS #5</td><td>TSA SRV</td></tr><tr><td></td><td>COM</td></tr><tr><td>FAN #2</td><td>FAN #2</td></tr><tr><td>LS #9</td><td>HS SRV</td></tr><tr><td>LS #13</td><td>TSA PRT</td></tr><tr><td>FUSE</td><td>FUSE</td></tr></table></div></div></div>				FAN #1	FAN #1	LS #1	HS SRV	LS #5	TSA SRV		COM	FAN #2	FAN #2	LS #9	HS SRV	LS #13	TSA PRT	FUSE	FUSE
FAN #1	FAN #1																		
LS #1	HS SRV																		
LS #5	TSA SRV																		
	COM																		
FAN #2	FAN #2																		
LS #9	HS SRV																		
LS #13	TSA PRT																		
FUSE	FUSE																		

FIG.15

14/104

Shelf Alarm Summary Display

Ring Network : Ring Network #01
Station : Station A
NODE : NODE #28
Shelf : LS #01

P U D 1	P U D 2	P U D 3	P U D 4	P U D 5	P U D 6	S U B C O N T	<div><input type="checkbox"/> S T M 16 S R V 1 ●</div>	<div><input type="checkbox"/> S T M 16 P R T 1 ○</div>	<div><input type="checkbox"/> S T M 16 P / T 1</div>	<div><input type="checkbox"/> S T M 16 S R V 1 ●</div>	<div><input type="checkbox"/> S T M 16 P R T 1 ○</div>	<div><input type="checkbox"/> S T M 16 S R V 2 ●</div>	<div><input type="checkbox"/> S T M 16 P R T 2 ○</div>	<div><input checked="" type="checkbox"/> S T M 16 S R V 17 ○</div>	<div><input type="checkbox"/> S T M 16 P R T 17 ●</div>	<div><input type="checkbox"/> S T M 16 P / T 17</div>
---------	---------	---------	---------	---------	---------	---------------	--------------------------------------------------------	--------------------------------------------------------	------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------------------	---------------------------------------------------------	-------------------------------------------------------

Card
###

Probable Cause
###

Severity
###

FIG.16

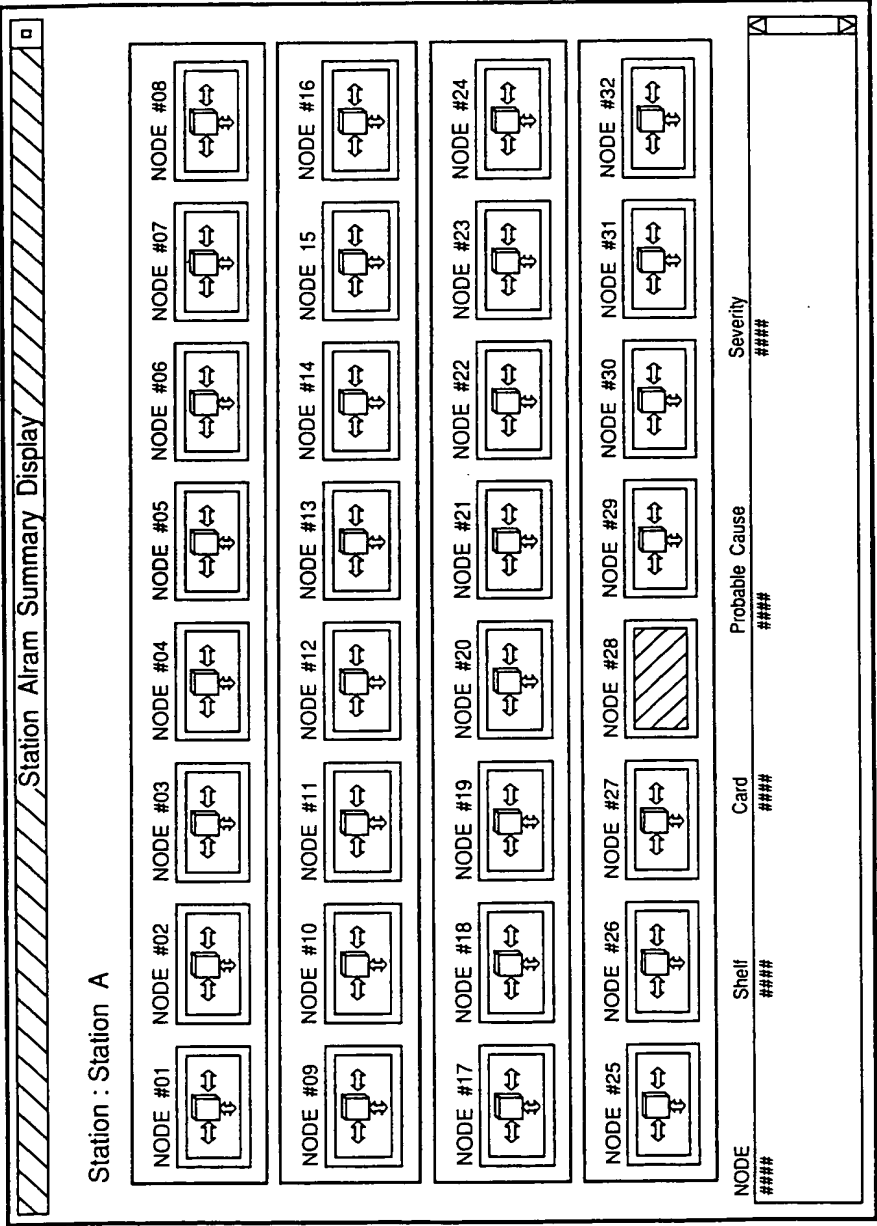
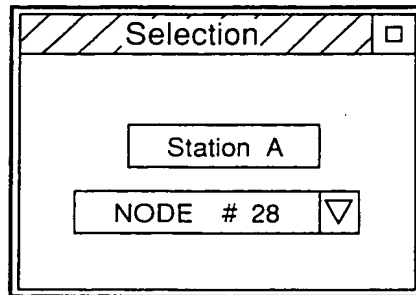


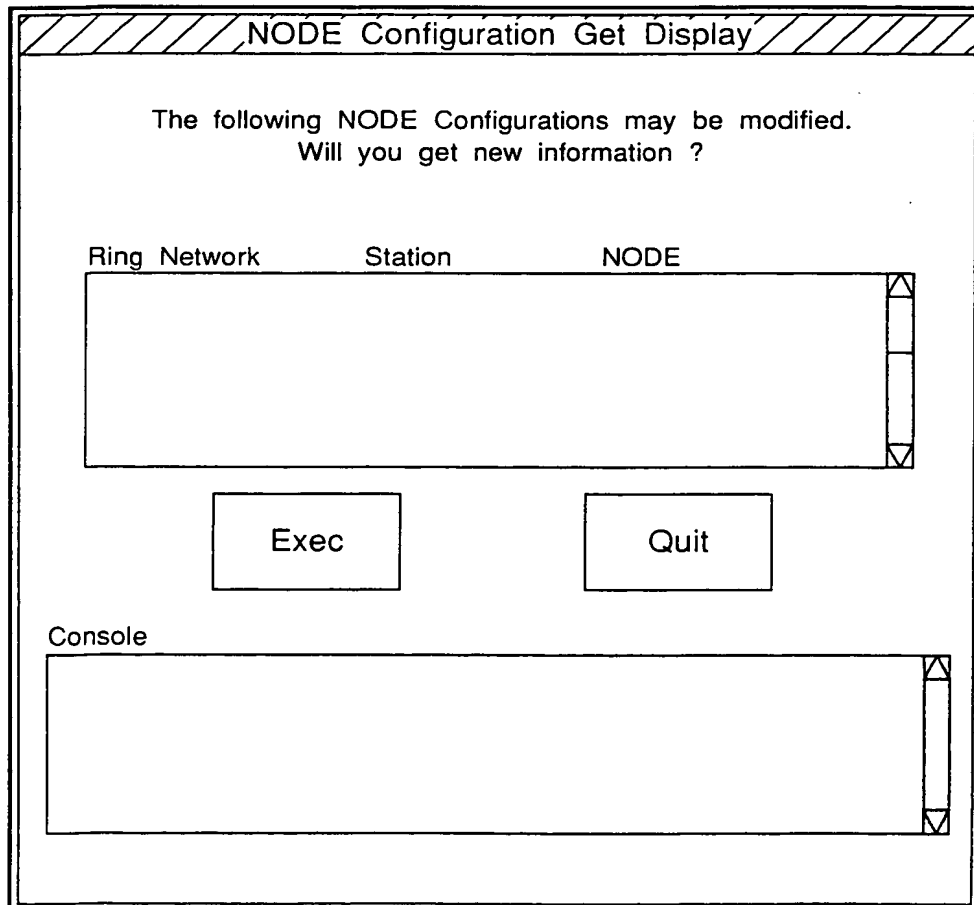
FIG.17

16/104



A small dialog box titled "Selection" with a close button in the top right corner. Inside the dialog, there is a text box containing "Station A" and a dropdown menu below it showing "NODE # 28" with a downward arrow.

FIG. 18



A window titled "NODE Configuration Get Display" with a hatched title bar. The main area contains the text: "The following NODE Configurations may be modified. Will you get new information ?". Below this is a table with three columns: "Ring Network", "Station", and "NODE". The table is currently empty. Below the table are two buttons: "Exec" and "Quit". At the bottom is a "Console" section with a large empty text area.

Ring Network	Station	NODE
--------------	---------	------

FIG. 19

17/104

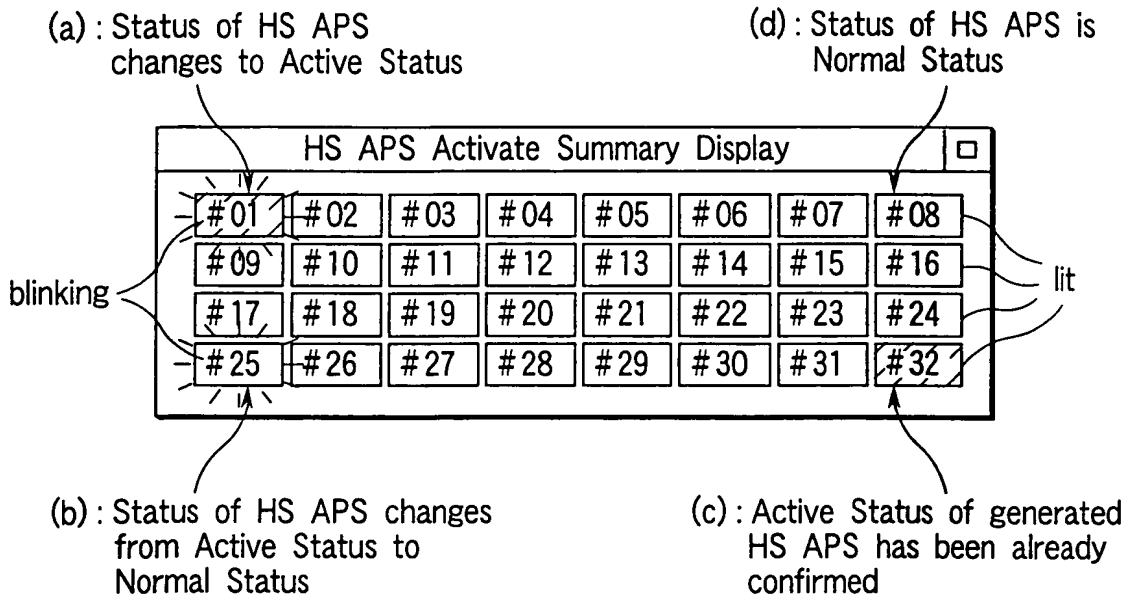


FIG. 20

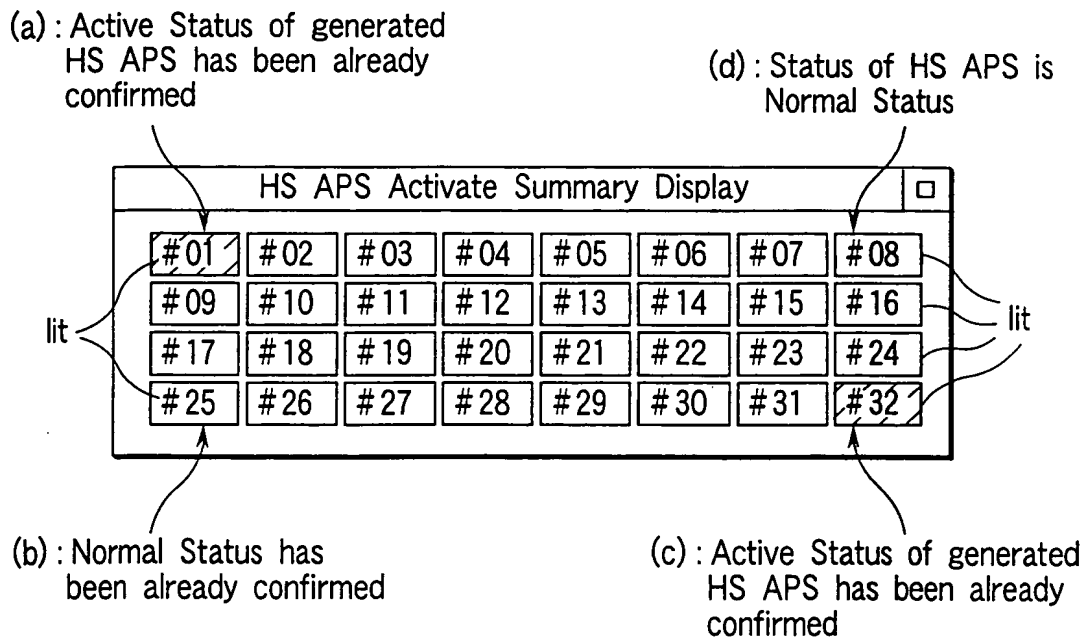


FIG. 21

18/104

Transmitter number	HS APS activation status (ex.) Normal Status : 0 Active Status : 1
#01	0
#02	1
#03	0
#04	1
#05	1
#06	0
#07	1
⋮	⋮
#218	1
#219	0
#220	0
#221	0
#222	0
#223	0
#224	0

Corresponding to network #01

Corresponding to network #32

FIG. 22

Network number	HS APS activation status (ex.) Normal Status : 0 Active Status : 1	Confirmation status (ex.) Unconfirmed : 0 (default) Confirmed : 1
#01	1	1
⋮	⋮	⋮
#08	0	0
⋮	⋮	⋮
#25	0	1
⋮	⋮	⋮
#32	1	0

FIG. 23

Button display		Meaning of display	
Red	Blinking	HS APS Active Status	Unconfirmed
	Lighting		Confirmed
Green	Blinking	HS APS Normal Status	Unconfirmed
	Lighting		Confirmed

FIG. 24

19/104

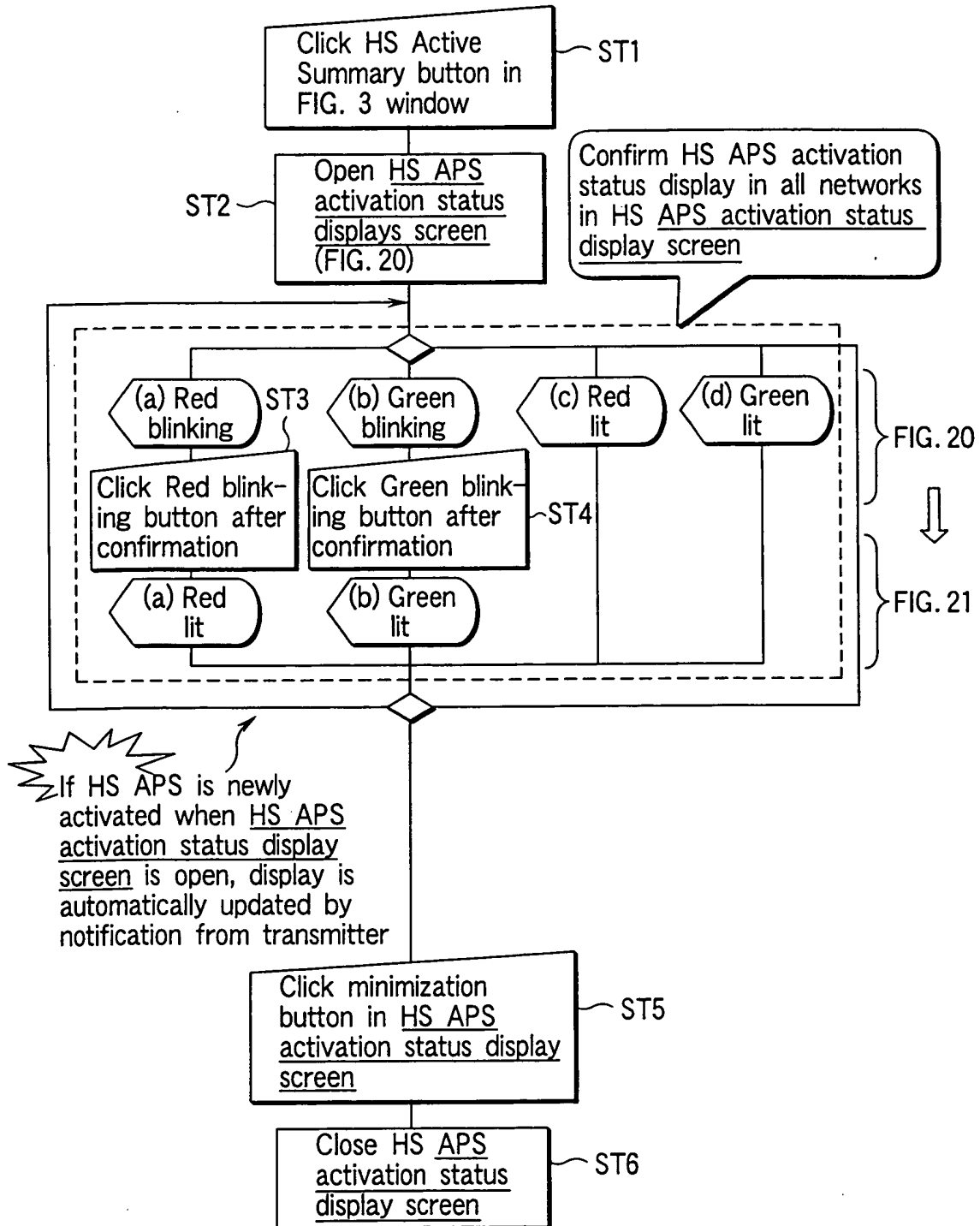


FIG. 25

HS APS Detailed Display

Date Time : 1998-10-17 14:59:39

Ring Network : Ring Network #01

Event Type : HS APS Switch Reporting

Value #####

(Old) :HS APS Normal Status

(New) :HS APS Active Status

Quit

FIG. 26

21/104

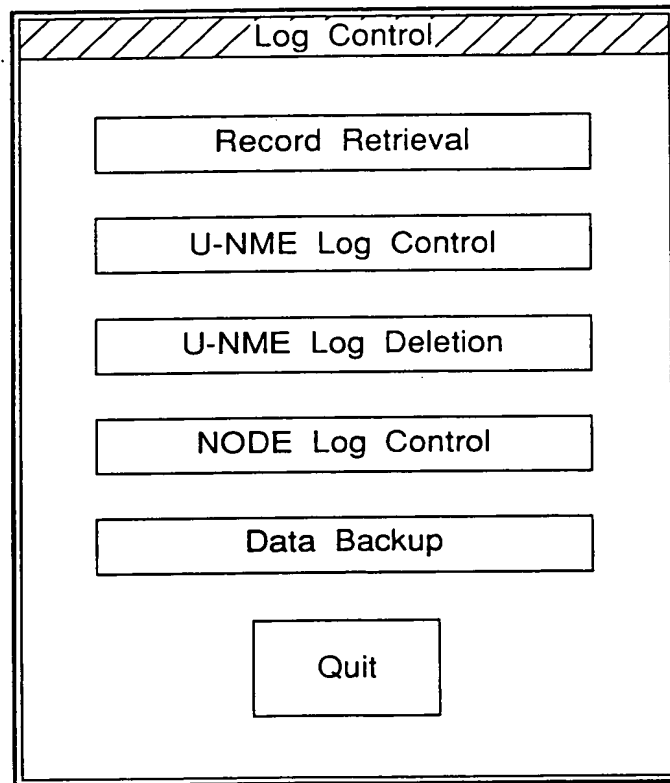


FIG. 27

22/104

Record Retrieval

Data Type : ☒ Online ☐ Backup

Data Load

Log type : ☒ NODE Alarm Log
☐ State Change Log
☐ U-NME Access Log
☐ SSE Alarm Log

☐ Object Creation/Deletion Log
☐ Protection Control Log
☐ Security Alarm Log

Event Time (Start) : Year Hour
Month Minute Day Second

Event Time (End) : Year Hour
Month Minute Day Second

Exec

Quit

FIG. 28

23/104

Data Load

Current Backup :

CMT Read

File Name :

Exec

Quit

FIG. 29

24/104

Item area

Display area

Filter Item Selection CSV Print Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	Ring	Network	Station	NODE	Event Type	Shelf(Object Class)
------	------	------	---------	---------	------	------------	---------------------

Click

To FIG. 34

FIG. 30

25/104

NODE Alarm Record Retrieval Filter		
Ring Network:	Ring Network #01 Ring Network #02 Ring Network #03 Ring Network #04 Ring Network #05	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Station:	Station A Station B Station C Station D	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
NODE:	NODE #01 NODE #02 NODE #03 NODE #04	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Shelf:	FAN #1 LS #1 LS #2 LS #3 LS #4	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Card:	ECCM ECCR OS WEST OS EAST OR WEST	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Event Type:	<input checked="" type="checkbox"/> Communications <input type="checkbox"/> Quality of Service <input type="checkbox"/> Equipment <input type="checkbox"/> Environmental	
Probable Cause:	Loss Of Signal Loss Of Frame Transmission Error AIS Remote Defect Indication	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Severity:	<input checked="" type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor <input type="checkbox"/> Warning <input type="checkbox"/> Cleared	
Specific Problems:	External Clock In Down Not Specified	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
<div>Exec Default Cancel</div>		

FIG. 31

26/104

NODE Alarm Record Retrieval Item Selection

Item : ☒ Date/Time ☐ Ring Network ☐ Station

☐ NODE ☐ Shelf(Object Class) ☐ Card(Object Instance)

☐ Event Type ☐ Probable Cause ☐ Severity

☐ Specific Problems ☐ Triggered Threshold ☐ Observed Value

☐ Notification ID ☐ Additional Text ☐ Memo

FIG. 32

27/104

The dialog box titled "CSV Format Convert" contains the following elements:

- An "FD Read" button at the top center.
- A "Saved Files" label followed by a list box containing the numbers 1, 2, 3, 4, and 5.
- A "Log" label followed by a series of dashes "-----".
- A "Date/Time(Start)" label with the value "1999/01/14 21:03:00".
- A "Date/Time(End)" label with the value "1999/04/02 03:05:05".
- A "File Name" label followed by a text input field.
- "Exec" and "Quit" buttons at the bottom.

FIG. 33

The dialog box titled "Memo Data Input" contains the following elements:

- A "Memo" label followed by a text input field.
- "Exec" and "Cancel" buttons at the bottom.

FIG. 34

28/104

Object Creation/Deletion Record Retrieval Report

Filter

Item Selection

CSV

Print

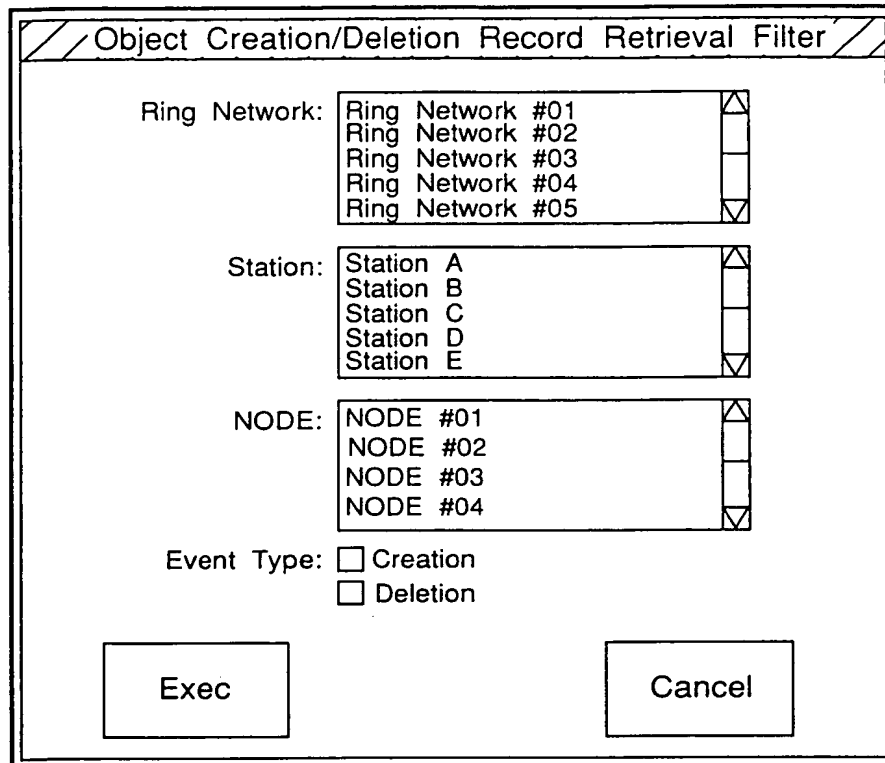
Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	Ring	Network	Station	NODE	Event	Type	Object	Class
------	------	------	---------	---------	------	-------	------	--------	-------

FIG. 35

29/104



Object Creation/Deletion Record Retrieval Filter

Ring Network: Ring Network #01
Ring Network #02
Ring Network #03
Ring Network #04
Ring Network #05

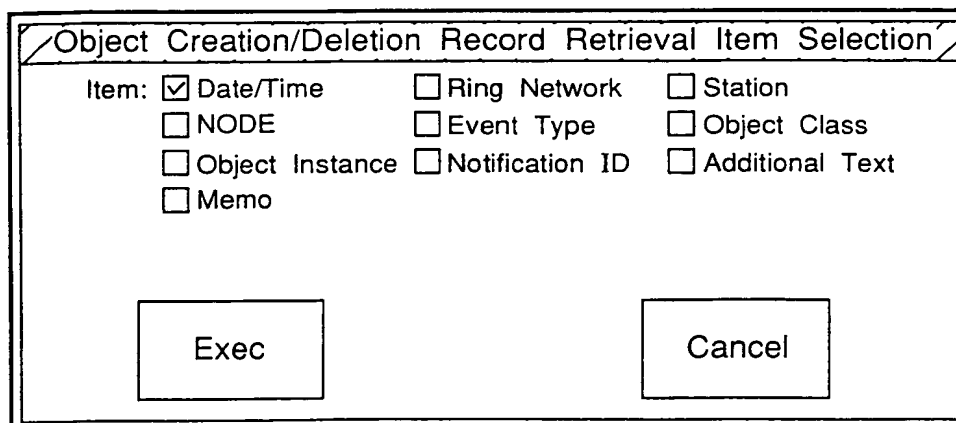
Station: Station A
Station B
Station C
Station D
Station E

NODE: NODE #01
NODE #02
NODE #03
NODE #04

Event Type: ☐ Creation
☐ Deletion

Exec Cancel

FIG. 36



Object Creation/Deletion Record Retrieval Item Selection

Item: ☒ Date/Time ☐ Ring Network ☐ Station
☐ NODE ☐ Event Type ☐ Object Class
☐ Object Instance ☐ Notification ID ☐ Additional Text
☐ Memo

Exec Cancel

FIG. 37

30/104

State Change Record Retrieval Report

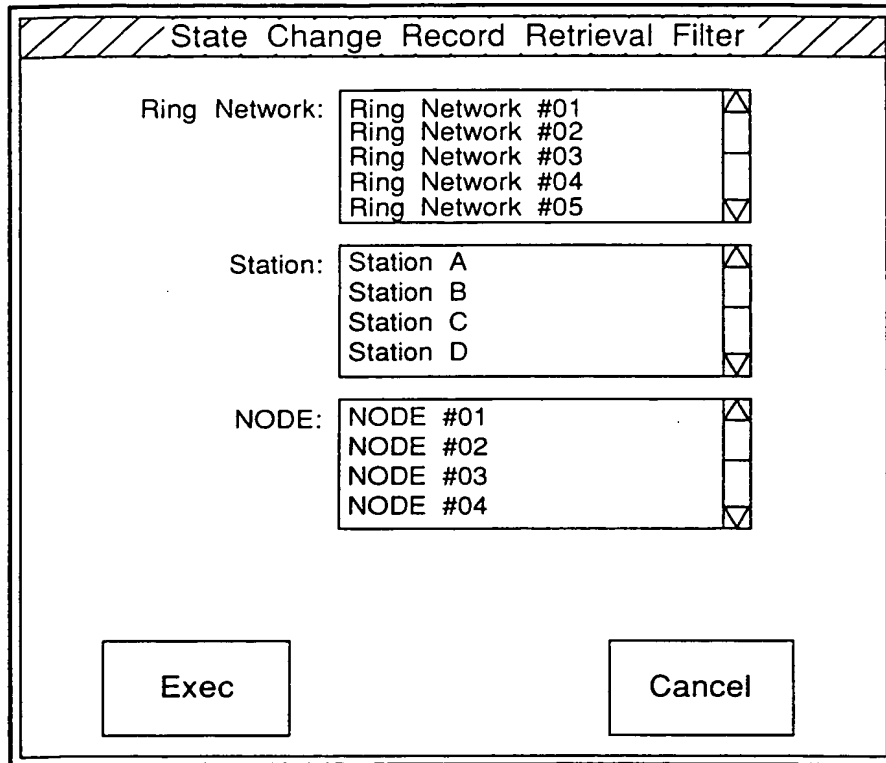
Filter Item Selection CSV Print Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	Ring	Network	Station	NODE	Object	Class	Attribute	ID	Memo
------	------	------	---------	---------	------	--------	-------	-----------	----	------

FIG. 38

31/104



A dialog box titled "State Change Record Retrieval Filter" with a hatched title bar. It contains three selection lists, each with a label to its left and a list box to its right. The first list is labeled "Ring Network:" and contains five items: "Ring Network #01", "Ring Network #02", "Ring Network #03", "Ring Network #04", and "Ring Network #05". The second list is labeled "Station:" and contains four items: "Station A", "Station B", "Station C", and "Station D". The third list is labeled "NODE:" and contains four items: "NODE #01", "NODE #02", "NODE #03", and "NODE #04". Each list box has a small upward-pointing triangle at the top and a downward-pointing triangle at the bottom. At the bottom of the dialog box are two buttons: "Exec" on the left and "Cancel" on the right.

State Change Record Retrieval Filter

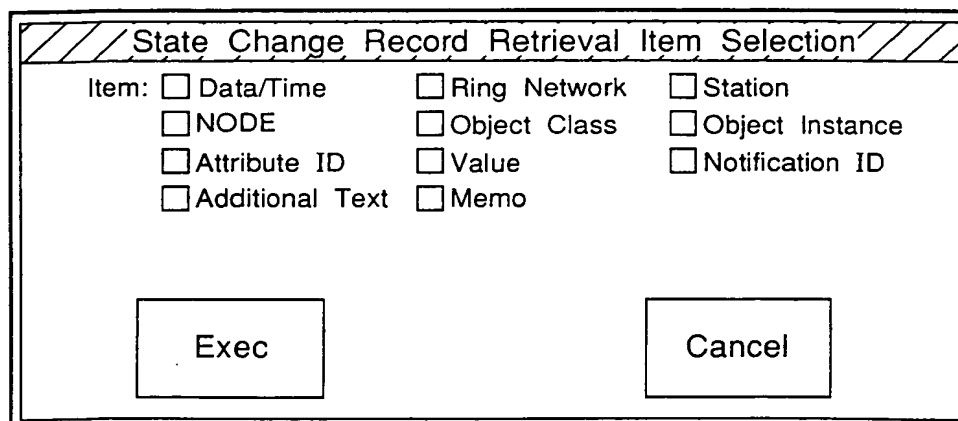
Ring Network: Ring Network #01
Ring Network #02
Ring Network #03
Ring Network #04
Ring Network #05

Station: Station A
Station B
Station C
Station D

NODE: NODE #01
NODE #02
NODE #03
NODE #04

Exec Cancel

FIG. 39



A dialog box titled "State Change Record Retrieval Item Selection" with a hatched title bar. It contains a group box labeled "Item:" followed by nine checkboxes arranged in three columns. The first column contains "Data/Time", "NODE", "Attribute ID", and "Additional Text". The second column contains "Ring Network", "Object Class", "Value", and "Memo". The third column contains "Station", "Object Instance", "Notification ID", and an empty checkbox. At the bottom of the dialog box are two buttons: "Exec" on the left and "Cancel" on the right.

State Change Record Retrieval Item Selection

Item: ☐ Data/Time ☐ Ring Network ☐ Station
☐ NODE ☐ Object Class ☐ Object Instance
☐ Attribute ID ☐ Value ☐ Notification ID
☐ Additional Text ☐ Memo

Exec Cancel

FIG. 40

Protection Control Record Retrieval Report

Filter

Item Selection

CSV

Print

Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	Ring	Network	Station	NODE	Protecting Unit	Protection Status
------	------	------	---------	---------	------	-----------------	-------------------

FIG. 41

33/104

Protection Control Record Retrieval Filter

Ring Network:

Station:

NODE:

Protecting Unit: ☒ HS
☐ Equipment
☐ LS

Exec Cancel

FIG. 42

Protection Control Record Retrieval Item Selection

Item: ☒ Data/Time ☐ Ring Network ☐ Station
☐ NODE ☐ Protecting Unit ☐ Protection Direction
☐ Object Class ☐ Object Instance ☐ Protection Status
☐ Request Source ☐ Switch Status ☐ Auto Switch Condition
☐ Switch Type ☐ Notification ID ☐ Additional Text
☐ Memo

Exec Cancel

FIG. 43

U-NME Access Record Retrieval Report

Filter

Item Selection

CSV

Print

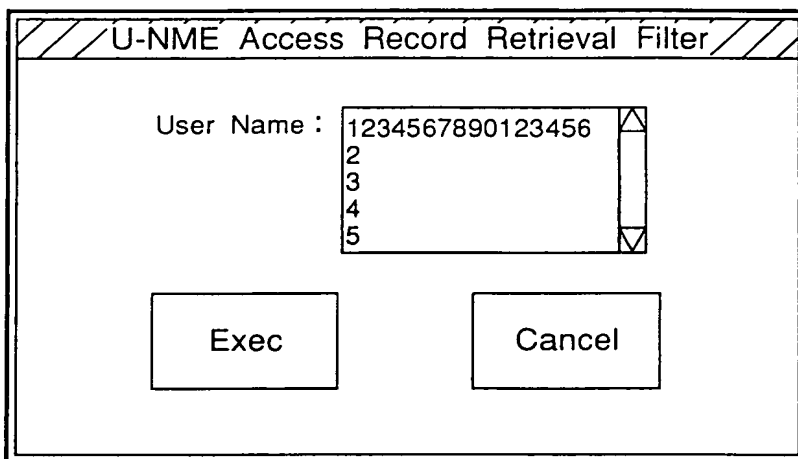
Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

START Date Time	END Date Time	User Name	Event	Memo
--------------------	------------------	-----------	-------	------

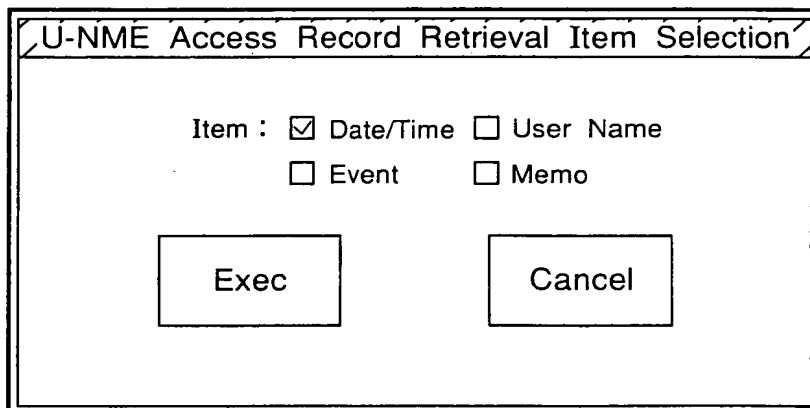
FIG. 44

35/104



A dialog box titled "U-NME Access Record Retrieval Filter". It contains a label "User Name :" followed by a text input field containing "1234567890123456". To the right of the input field is a vertical scroll bar with a list of numbers: 2, 3, 4, and 5. At the bottom of the dialog are two buttons: "Exec" and "Cancel".

FIG. 45



A dialog box titled "U-NME Access Record Retrieval Item Selection". It contains a label "Item :" followed by four checkboxes: ☒ Date/Time, ☐ User Name, ☐ Event, and ☐ Memo. At the bottom of the dialog are two buttons: "Exec" and "Cancel".

FIG. 46

Security Alarm Record Retrieval Report

Filter

Item Selection

CSV

Print

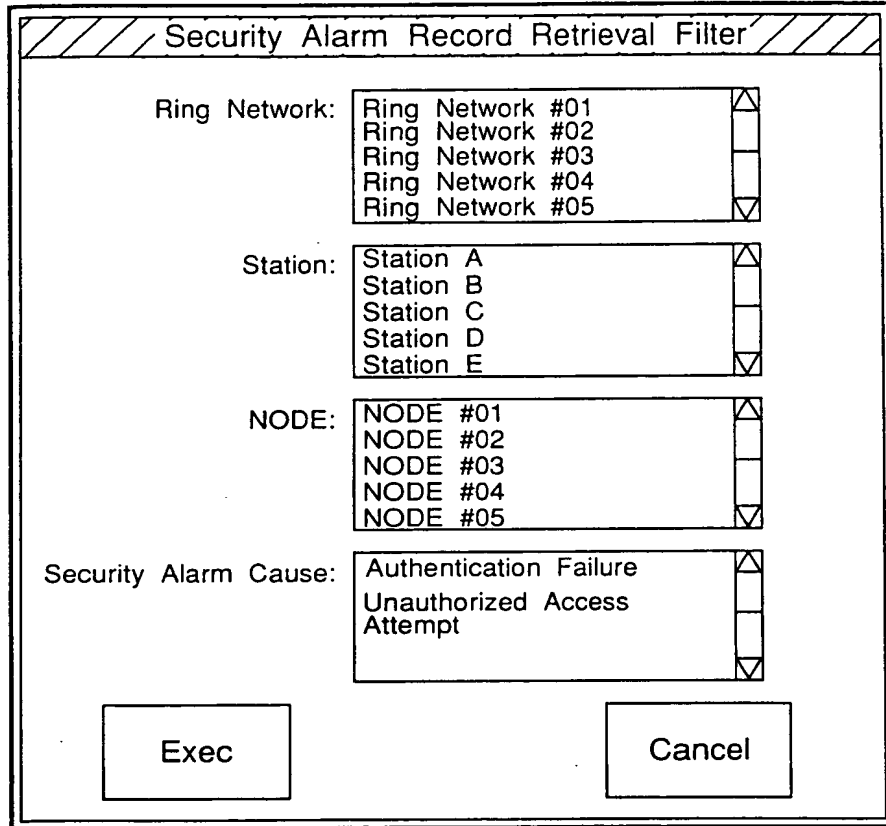
Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	Ring	Network	Station	NODE	Security	Alarm	Cause
------	------	------	---------	---------	------	----------	-------	-------

FIG. 47

37/104

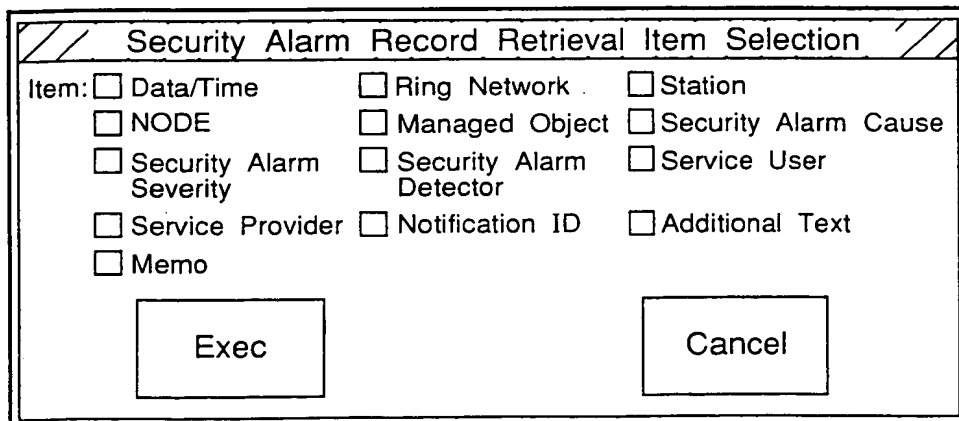


A dialog box titled "Security Alarm Record Retrieval Filter" with a hatched border. It contains four filter criteria, each with a list box and up/down arrow buttons:

- Ring Network:** Ring Network #01, Ring Network #02, Ring Network #03, Ring Network #04, Ring Network #05
- Station:** Station A, Station B, Station C, Station D, Station E
- NODE:** NODE #01, NODE #02, NODE #03, NODE #04, NODE #05
- Security Alarm Cause:** Authentication Failure, Unauthorized Access Attempt

At the bottom are two buttons: "Exec" and "Cancel".

FIG. 48



A dialog box titled "Security Alarm Record Retrieval Item Selection" with a hatched border. It contains a list of items with checkboxes:

Item: ☐ Data/Time ☐ Ring Network ☐ Station
☐ NODE ☐ Managed Object ☐ Security Alarm Cause
☐ Security Alarm Severity ☐ Security Alarm Detector ☐ Service User
☐ Service Provider ☐ Notification ID ☐ Additional Text
☐ Memo

At the bottom are two buttons: "Exec" and "Cancel".

FIG. 49

38/104

SSE Alarm Record Retrieval Report

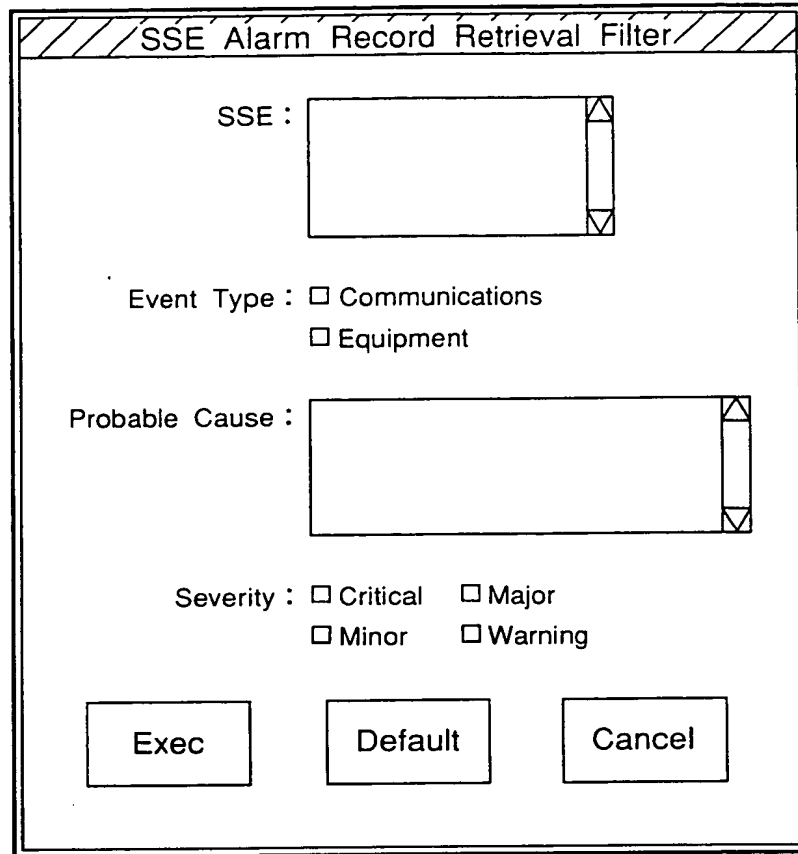
Filter Item Selection CSV Print Quit

(Online) 00:00:00 1999-01-14 - 00:00:00 1999-04-02

Time	Date	SSE	Event Type	Probable Cause	Severity	Additional Text	Memo
------	------	-----	------------	----------------	----------	-----------------	------

FIG. 50

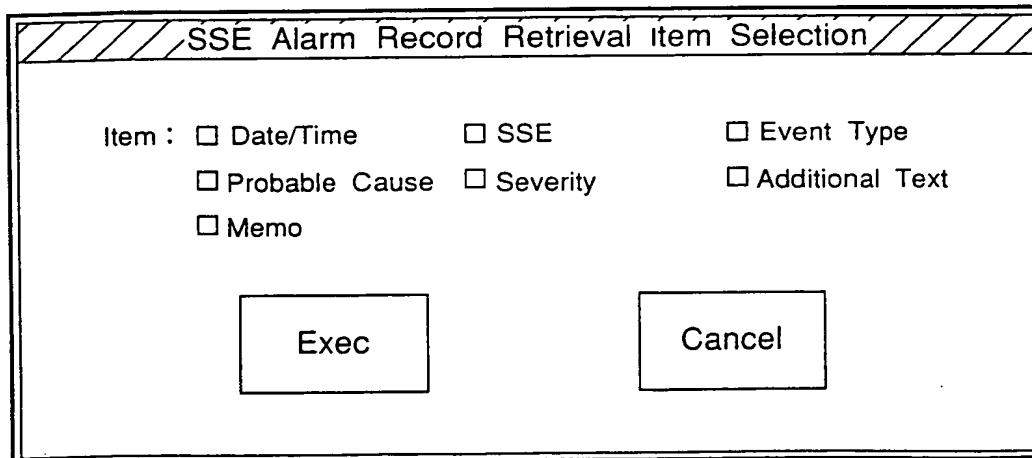
39/104



The dialog box is titled "SSE Alarm Record Retrieval Filter". It contains the following elements:

- SSE :** A text input field with a vertical scroll bar on its right side.
- Event Type :** Two checkboxes labeled "Communications" and "Equipment".
- Probable Cause :** A text input field with a vertical scroll bar on its right side.
- Severity :** Four checkboxes arranged in two rows: "Critical" and "Major" in the top row, "Minor" and "Warning" in the bottom row.
- Buttons:** Three buttons labeled "Exec", "Default", and "Cancel" are positioned at the bottom of the dialog.

FIG. 51



The dialog box is titled "SSE Alarm Record Retrieval Item Selection". It contains the following elements:

- Item :** Six checkboxes arranged in three rows: "Date/Time", "SSE", and "Event Type" in the first row; "Probable Cause", "Severity", and "Additional Text" in the second row; and "Memo" in the third row.
- Buttons:** Two buttons labeled "Exec" and "Cancel" are positioned at the bottom of the dialog.

FIG. 52

U-NME Log Control

Logging

Log Full Action

Max Log Records

Capacity Alarm Threshold

U-NME Access : Allow

SSE Alarm : Allow

Wrap

Wrap

10

10

80

80

Control Log :

Logging : [Inhibit]

Allow

Inhibit

Log Full Action : [Wrap]

Wrap

Halt

Max Log Records : [1000000]

Record(s)

1

(1-1000000)

Capacity Alarm Threshold : [100]

%

0

100

1000000 Record(s)

Ref : Current Log Usage rate is 100 %

Number of Records are(is) 100

Console

Exec

Quit

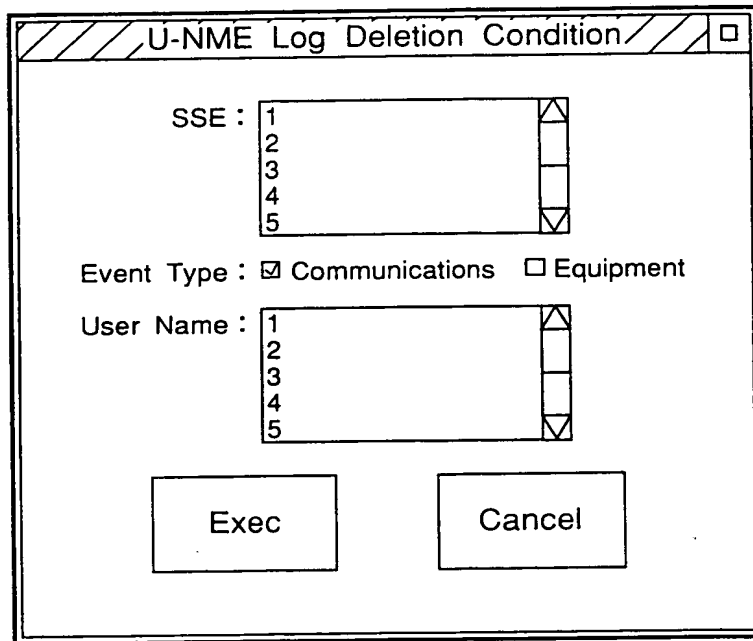
FIG.53

41/104

U-NME Log Deletion			
Max Log Records	Number of Records	Current Log Usage rate	Capacity Alarm Threshold
U-NME Access : SSE Alarm :			
Control Log :			
Date/time(Start) : Year	Mouth	Day	
Hour	Minute	Second	
Date/time(End) : Year	Mouth	Day	
Hour	Minute	Second	
Condition Set : <input checked="" type="radio"/> No <input type="radio"/> Yes		Condition	
		Exec	Quit

FIG.54

42/104



A screenshot of a software dialog box titled "U-NME Log Deletion Condition". The dialog box contains two list boxes, one for "SSE" and one for "User Name", both with five items numbered 1 to 5. Below these is an "Event Type" section with two checkboxes: "Communications" (checked) and "Equipment" (unchecked). At the bottom are two buttons: "Exec" and "Cancel".

U-NME Log Deletion Condition

SSE : 1 2 3 4 5

Event Type : ☒ Communications ☐ Equipment

User Name : 1 2 3 4 5

Exec Cancel

FIG. 55

43/104

NODE Log Control	
<input type="text" value="NODE"/>	Read after selecting NODE
Current Max Log Size : <input checked="" type="radio"/> Alarm	<input type="text" value="Kbytes"/>
<input type="radio"/> Object Creation/Deletion	<input type="text" value="Kbytes"/>
<input type="radio"/> State Change	<input type="text" value="Kbytes"/>
<input type="radio"/> Protection Control	<input type="text" value="Kbytes"/>
<input type="radio"/> Security Alarm	<input type="text" value="Kbytes"/>
Total Log Size : Kbytes (Max : 2000Kbytes)	
Control Log :	
Max Log Size : [2000] [2000] Kbytes	
(1-2000) 1 2000 Kbytes	
Console	<input type="text"/>
<input type="button" value="Exec"/>	<input type="button" value="Quit"/>

FIG. 56

44/104

The 'NODE Selection' dialog box features a title bar with diagonal hatching. Inside, the 'Station/Ring Network' section contains three radio buttons: 'All', 'Station', and 'Ring Network', with the latter being selected. Below this is a dropdown menu showing 'Ring Network #01'. The 'NODE' section contains a dropdown menu showing 'NODE #01'. At the bottom are 'Exec' and 'Cancel' buttons.

NODE Selection

Station/Ring Network : ☐ All ☐ Station ☒ Ring Network

Ring Network #01 ▼

NODE : NODE #01 ▼

Exec Cancel

FIG. 57

The 'Data Backup' dialog box has a title bar with diagonal hatching and a close button. It contains a 'CMT Read' button, a 'Saved Files' label next to an empty list box with a vertical scrollbar, and three buttons at the bottom: 'Backup', 'Format', and 'Quit'.

Data Backup

CMT Read

Saved Files :

Backup Format Quit

FIG. 58

45/104

The 'Backup' window contains the following elements:

- Log:** A dropdown menu currently showing 'U-NME Access Log'.
- Date / Time (Start):** Six spinners for Year, Month, Day, Hour, Minute, and Second.
- Date / Time (End):** Six spinners for Year, Month, Day, Hour, Minute, and Second.
- File Name:** A text input field.
- Buttons:** 'Exec' and 'Quit' buttons at the bottom.

FIG. 59

The 'Performance Control' window contains the following elements:

- Performance Data Record Retrieval**
- Daily/Monthly/Annual Report Print**
- Quality of Service Alarm Control**
- Quit** button at the bottom.

FIG. 60

46/104

Performance Data Record Retrieval

Data Type : ☒ Online ☐ Backup

Data Load :

Event Time (Start) : Year Month Day
Hour Minute Second

Event Time (End) : Year Month Day
Hour Minute Second

Performance Condition 1
Performance Condition 2
Performance Condition 3
Performance Condition 4

Ring Network/Station NODE

Operation Mode Channel Monitoring Section Performance Event

Click

To FIG. 62

Exec

Quit

FIG. 61

47/104

Performance Data Record Retrieval Condition	
Performance Condition : 1	
Station/Ring Network : <input checked="" type="radio"/> All <input type="radio"/> Station <input type="radio"/> Ring Network	
	<div>Ring Network #01 ▾</div>
NODE :	<div>NODE #01 ▾</div>
Channel :	<div>LS 1 ▾</div>
Operation Mode :	<div>SRV <input type="checkbox"/></div>
Monitoring Section :	<input checked="" type="checkbox"/> R-Section <input type="checkbox"/> M-Section
Performance Event :	<div>TCCV <input type="checkbox"/></div>
<div>Exec</div> <div>Cancel</div>	

FIG. 62

48/104

The image shows a graphical user interface window titled "Data Load". The window has a title bar with diagonal hatching. Inside the window, the text "Current Backup :" is displayed. Below this text is a button labeled "CMT Read". Further down is a label "File Name :" followed by a text input field. The input field has a vertical scrollbar on its right side. At the bottom of the window, there are two buttons: "Exec" on the left and "Quit" on the right.

FIG. 63

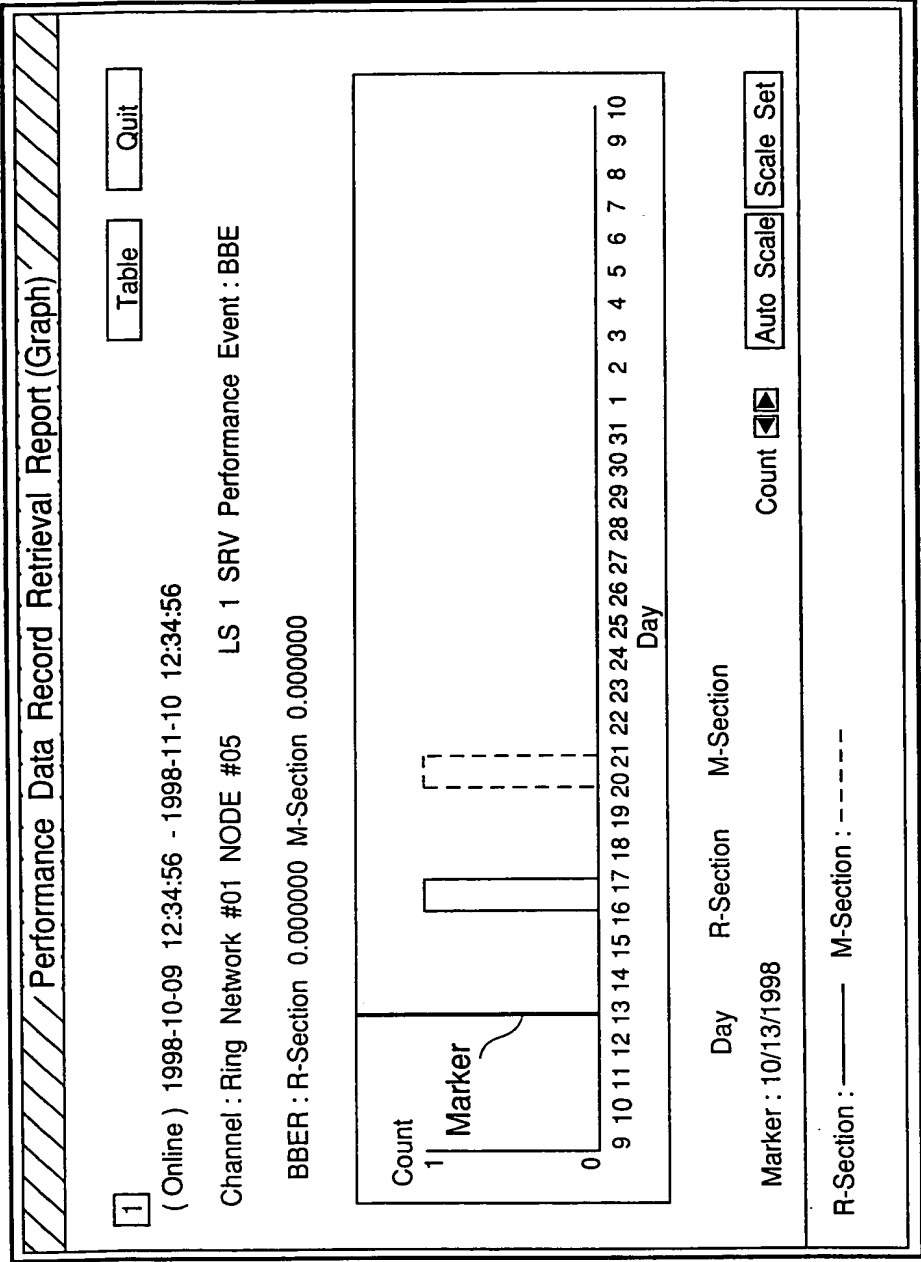


FIG. 64

Performance Data Record Retrieval Report (Graph)

(Online) 1998-10-09 12:34:56 - 1998-11-10 12:34:56

Quit

1

Table

Channel : Ring Network #01 NODE #05

LS 1 SRV Performance Event : BBE

BBER : R-Section 0.00000

M-Section 0.00000

Day R-Section M-Section

Marker : 10/13/1998 Count

Auto Scale

Scale Set

2

Table

Channel : Ring Network #01 NODE #03

LS 1 SRV Performance Event : BBE

BBER : R-Section 0.00000

M-Section 0.00000

Day R-Section M-Section

Marker : 10/13/1998 Count

Auto Scale

Scale Set

R-Section : -----

M-Section : -----

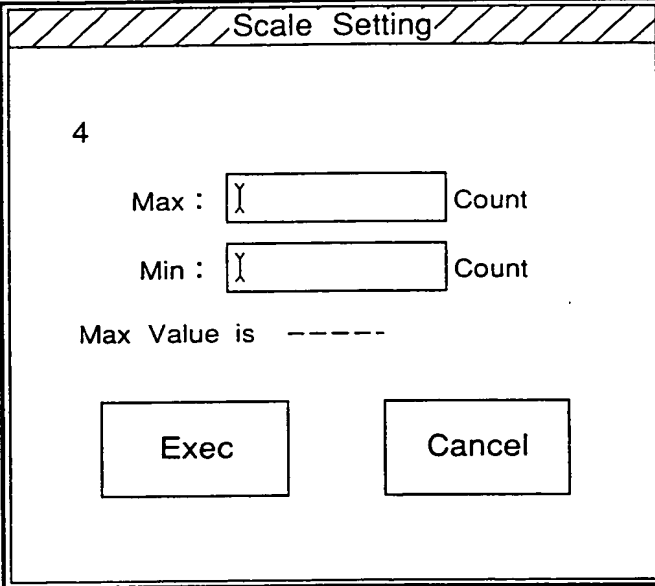
FIG.65

51/104

Performance Data Record Retrieval Report (Graph)									
(Online) 1998-10-09 12:34:56 - 1998-11-10 12:34:56 <input type="button" value="Quit"/>									
<input type="button" value="1"/> <input type="button" value="Table"/>	Channel : Ring	Network #01	NODE #05	LS 1 SRV	Performance Event : BBE	BBER : R-Section 0.00000 M-Section 0.00000			
Day R-Section		M-Section		Count		<input type="button" value="Auto Scale"/> <input type="button" value="Scale Set"/>			
Marker : 10/13/1998									
<input type="button" value="2"/> <input type="button" value="Table"/>	Channel : Ring	Network #01	NODE #03	LS 1 SRV	Performance Event : BBE	BBER : R-Section 0.00000 M-Section 0.00000			
Day R-Section		M-Section		Count		<input type="button" value="Auto Scale"/> <input type="button" value="Scale Set"/>			
Marker : 10/13/1998									
<input type="button" value="3"/> <input type="button" value="Table"/>	Channel : Ring	Network #01	NODE #01	LS 1 SRV	Performance Event : BBE	BBER : R-Section 0.00000 M-Section 0.00000			
Day R-Section		M-Section		Count		<input type="button" value="Auto Scale"/> <input type="button" value="Scale Set"/>			
Marker : 10/13/1998									
R-Section : ----- M-Section : -----									

FIG. 66

52/104



A dialog box titled "Scale Setting" with a hatched title bar. Inside the dialog, the number "4" is displayed in the top left. Below it, there are two input fields. The first is labeled "Max :" and the second is labeled "Min :". Each input field contains a cursor symbol (an inverted 'Y') and is followed by the word "Count". Below these fields, the text "Max Value is" is followed by a dashed line "-----". At the bottom of the dialog, there are two buttons: "Exec" on the left and "Cancel" on the right.

Scale Setting

4

Max : Count

Min : Count

Max Value is -----

Exec Cancel

FIG. 67

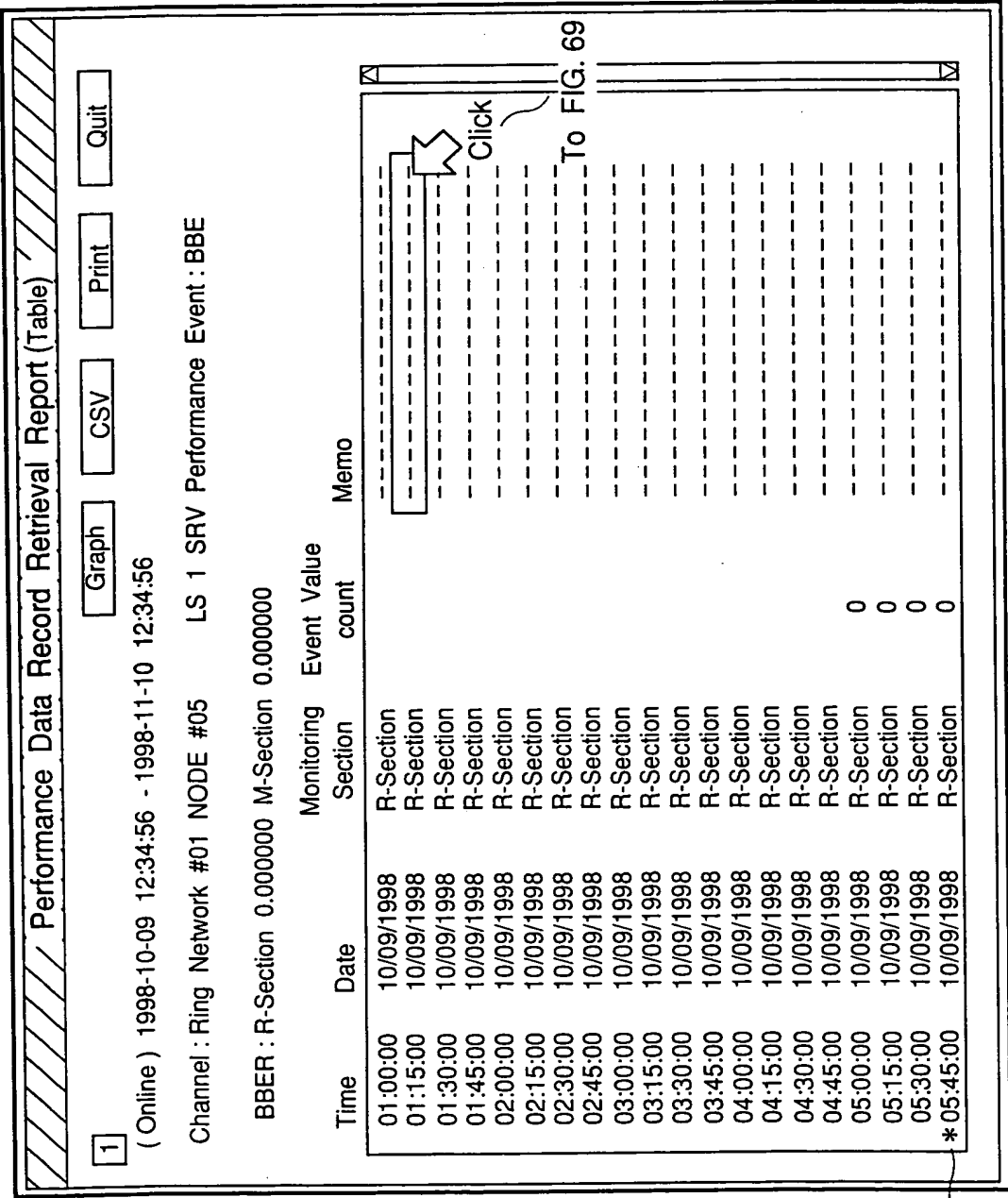
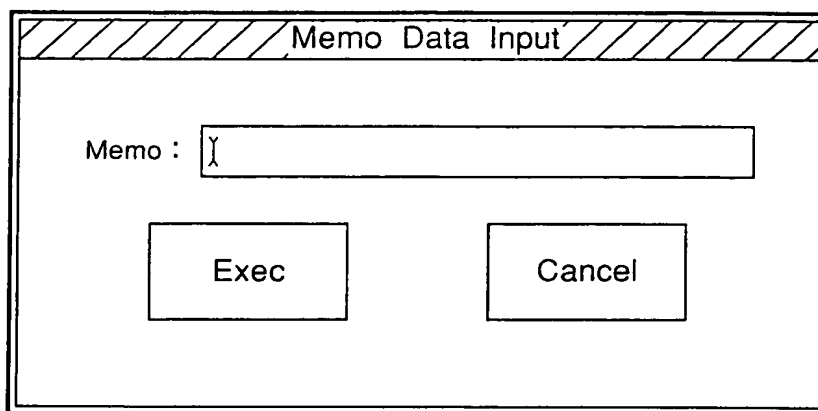


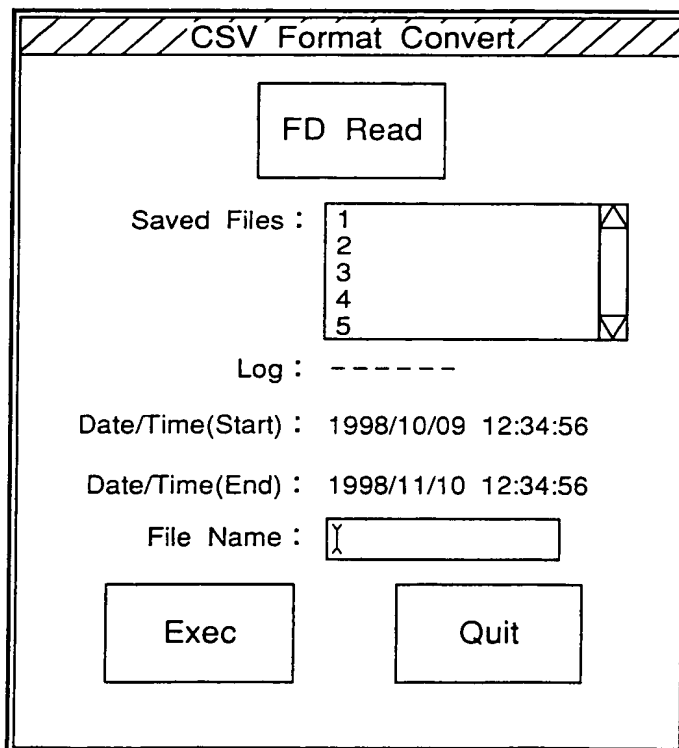
FIG. 68

54/104



A dialog box titled "Memo Data Input" with a hatched title bar. It contains a label "Memo :" followed by a text input field. Below the input field are two buttons: "Exec" and "Cancel".

FIG. 69



A dialog box titled "CSV Format Convert" with a hatched title bar. It contains a button "FD Read" at the top. Below it is a label "Saved Files :" followed by a list box containing the numbers 1, 2, 3, 4, and 5. Below the list box is a label "Log : " followed by a series of dashes. Below that are two lines of text: "Date/Time(Start) : 1998/10/09 12:34:56" and "Date/Time(End) : 1998/11/10 12:34:56". Below these is a label "File Name :" followed by a text input field. At the bottom are two buttons: "Exec" and "Quit".

FIG. 70

55/104

Daily/Monthly/Annual Report Print

Report :

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

NODE :

Channel :

Operation Mode :

Monitoring Section :

Date : Year Month Day

FIG. 71

Quality of Service Alarm Control

NODE/Channel/Section : Ring Network #01 NODE #05 LS1 R-Section

Event Notify Severity Threshold Notify Severity Threshold

TCCV BBE ES SES UAS OFS

Click

Operation Mode : [SRV]

Notify : [On]

Severity : [Critical]

Threshold : [1234567890]

Console

Exec

Quit

FIG. 72

57/104

NODE/Channel/Section Selection

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

Ring Network #01 ▾

NODE : NODE #05 ▾

Channel : LS 1 ▾

Monitoring Section : R-Section ☐

Exec Cancel

FIG. 73

59/104

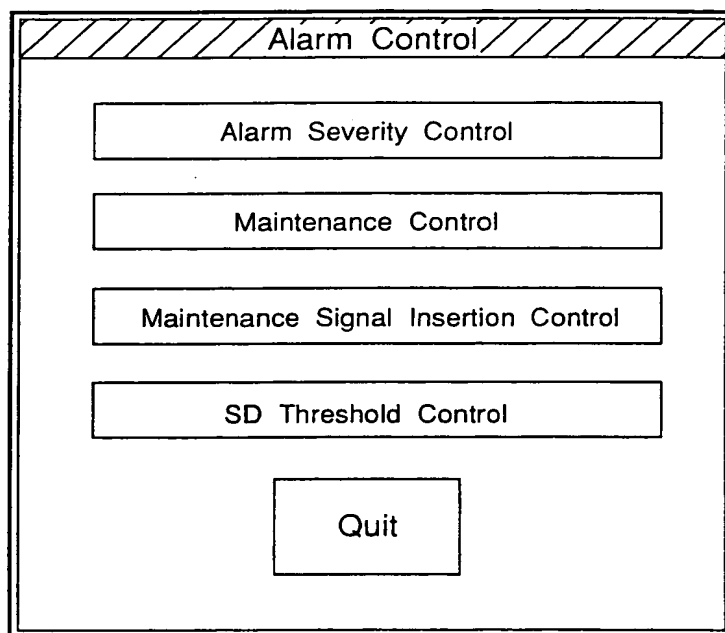
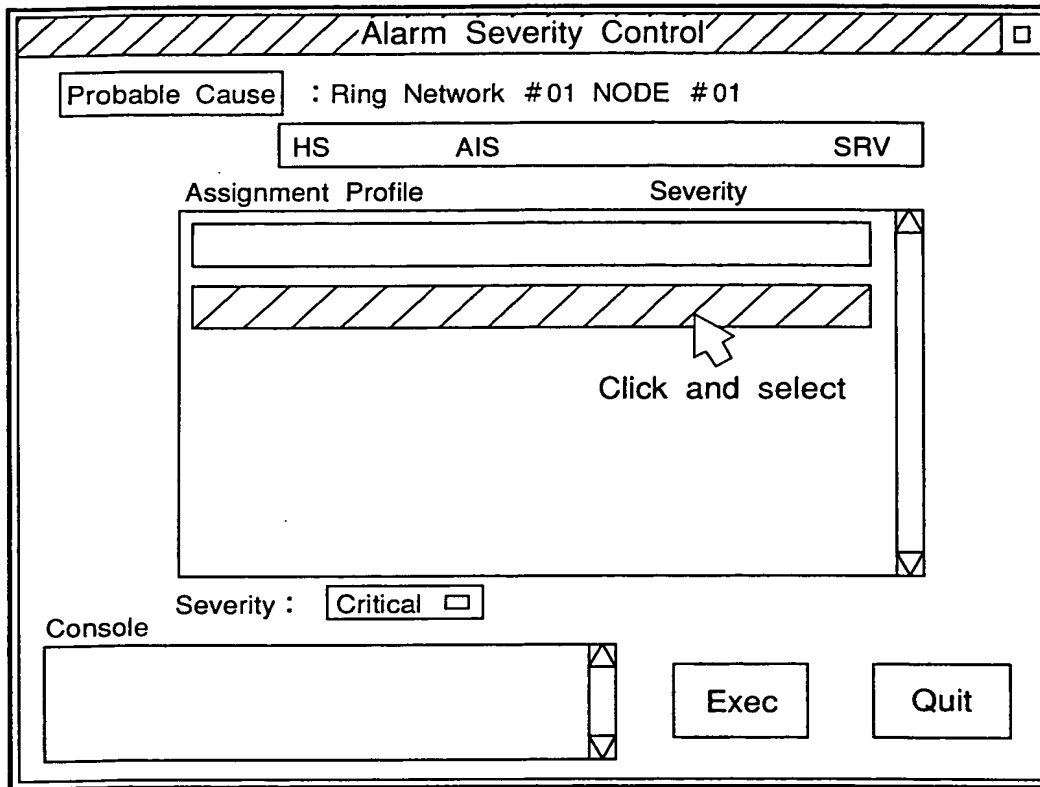


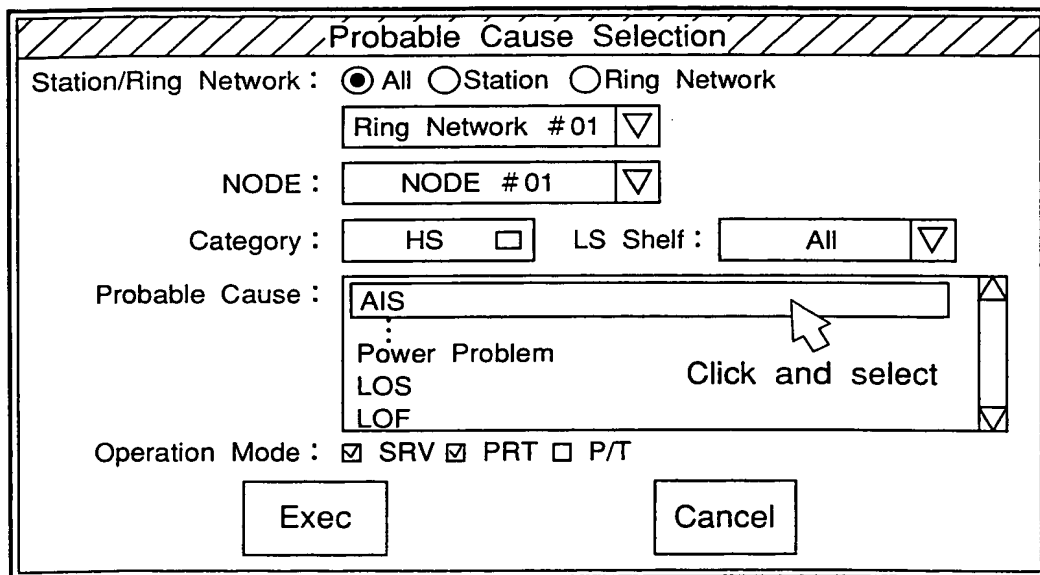
FIG. 75

60/104



The "Alarm Severity Control" window features a title bar with a close button. Below the title bar, a text field displays "Probable Cause : Ring Network #01 NODE #01". A horizontal bar contains three buttons: "HS", "AIS", and "SRV". Below this bar, a table with two columns, "Assignment Profile" and "Severity", is shown. The first row of the table is highlighted with diagonal hatching, and a mouse cursor points to it with the text "Click and select". Below the table, a "Severity" label is followed by a dropdown menu currently showing "Critical". At the bottom left is a "Console" text area. At the bottom right are "Exec" and "Quit" buttons.

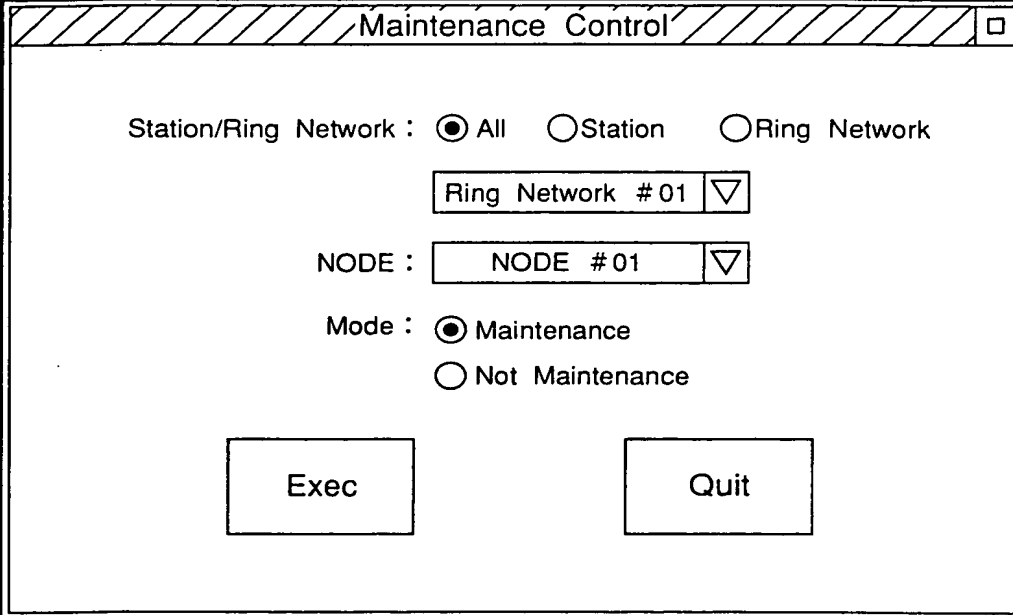
FIG. 76



The "Probable Cause Selection" window has a title bar with a close button. It contains several input fields: "Station/Ring Network" with radio buttons for "All" (selected), "Station", and "Ring Network"; "Ring Network" with a dropdown menu showing "Ring Network #01"; "NODE" with a dropdown menu showing "NODE #01"; "Category" with a dropdown menu showing "HS"; and "LS Shelf" with a dropdown menu showing "All". Below these is a "Probable Cause" list box containing "AIS", "Power Problem", "LOS", and "LOF", with a mouse cursor pointing to "AIS" and the text "Click and select". At the bottom, "Operation Mode" is set with checkboxes for "SRV" (checked), "PRT" (checked), and "P/T" (unchecked). "Exec" and "Cancel" buttons are at the bottom.

FIG. 77

61/104



The image shows a graphical user interface window titled "Maintenance Control". The window has a standard title bar with a close button in the top right corner. The main content area contains the following elements:

- A label "Station/Ring Network :" followed by three radio buttons: ☒ All, ☐ Station, and ☐ Ring Network.
- A text box containing "Ring Network # 01" with a dropdown arrow on the right.
- A label "NODE :" followed by a text box containing "NODE # 01" with a dropdown arrow on the right.
- A label "Mode :" followed by two radio buttons: ☒ Maintenance and ☐ Not Maintenance.
- Two buttons at the bottom: "Exec" on the left and "Quit" on the right.

FIG. 78

62/104

The screenshot shows a graphical user interface window titled "Maintenance Signal Insertion Control". At the top, there is a label "NODE/Shelf :" followed by an empty text input field. Below this, there is a table with four columns: "Channel", "SRV", "PRT", and "P/T". The table contains two visible rows, "LS 1" and "LS 2", followed by three vertical ellipses indicating more rows. A mouse cursor is pointing at the "LS 2" row, and the text "Click and select" is displayed next to it. At the bottom left, there is a label "Console" above a text area. At the bottom right, there are two buttons labeled "Exec" and "Quit".

Channel	SRV	PRT	P/T
LS 1			
LS 2			
•			
•			
•			

FIG. 79

63/104

The dialog box has a title bar with diagonal hatching and the text "NODE/Shelf Selection". Inside, the "Station/Ring Network" section contains three radio buttons: "All" (selected), "Station", and "Ring Network". Below this is a text box labeled "Ring Network # 01" with a dropdown arrow. The "NODE" section has a text box labeled "NODE # 01" with a dropdown arrow. The "Shelf" section has a text box labeled "All" with a dropdown arrow. At the bottom are two buttons: "Exec" and "Cancel".

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

Ring Network # 01 ▾

NODE : NODE # 01 ▾

Shelf : All ▾

Exec Cancel

FIG. 80

The dialog box has a title bar with diagonal hatching and the text "Insertion Mode Setting". Inside, the "Channel" is set to "LS 2". There are three rows of settings, each with a label and two radio buttons: "SRV : ☒ Allow ☐ Inhibit", "PRT : ☒ Allow ☐ Inhibit", and "P/T : ☒ Allow ☐ Inhibit". At the bottom are two buttons: "Exec" and "Cancel".

Channel : LS 2

SRV : ☒ Allow ☐ Inhibit

PRT : ☒ Allow ☐ Inhibit

P/T : ☒ Allow ☐ Inhibit

Exec Cancel

FIG. 81

64/104

The dialog box titled "SD Threshold Control" features a "NODE/Shelf" label and an empty text input field. Below this is a table with four columns: "Channel", "SRV", "PRT", and "P/T". The table contains three rows of empty input fields, with a mouse cursor pointing at the second row. To the left of the second and third rows are three vertical dots. At the bottom left is a "Console" label above a text area. At the bottom right are "Exec" and "Quit" buttons.

Channel	SRV	PRT	P/T

FIG. 82

The dialog box titled "NODE/Shelf Selection" contains a "Station/Ring Network" section with three radio buttons: "All" (selected), "Station", and "Ring Network". Below this is a "Ring Network #01" dropdown menu. Further down are "NODE : NODE #01" and "Shelf : All" dropdown menus. At the bottom are "Exec" and "Cancel" buttons.

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

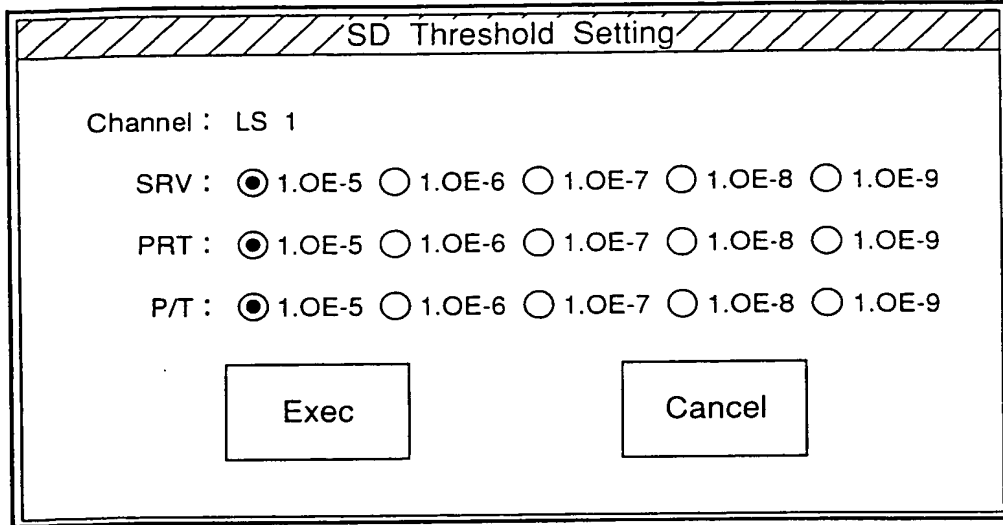
Ring Network #01 ▾

NODE : NODE #01 ▾

Shelf : All ▾

FIG. 83

65/104



SD Threshold Setting

Channel : LS 1

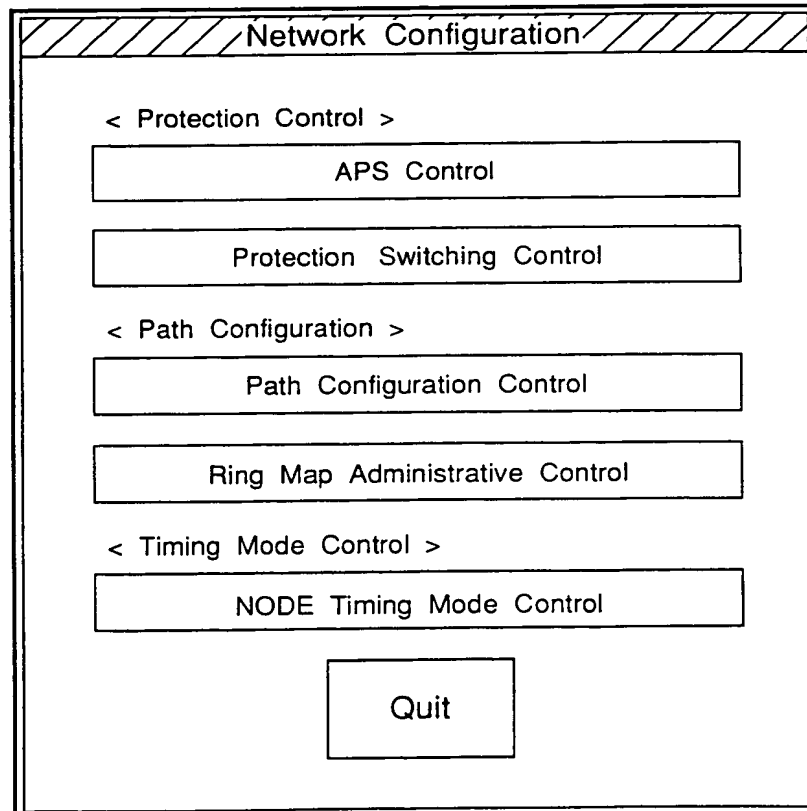
SRV : ☒ 1.OE-5 ☐ 1.OE-6 ☐ 1.OE-7 ☐ 1.OE-8 ☐ 1.OE-9

PRT : ☒ 1.OE-5 ☐ 1.OE-6 ☐ 1.OE-7 ☐ 1.OE-8 ☐ 1.OE-9

P/T : ☒ 1.OE-5 ☐ 1.OE-6 ☐ 1.OE-7 ☐ 1.OE-8 ☐ 1.OE-9

Exec Cancel

FIG. 84



Network Configuration

< Protection Control >

APS Control

Protection Switching Control

< Path Configuration >

Path Configuration Control

Ring Map Administrative Control

< Timing Mode Control >

NODE Timing Mode Control

Quit

FIG. 85

66/104

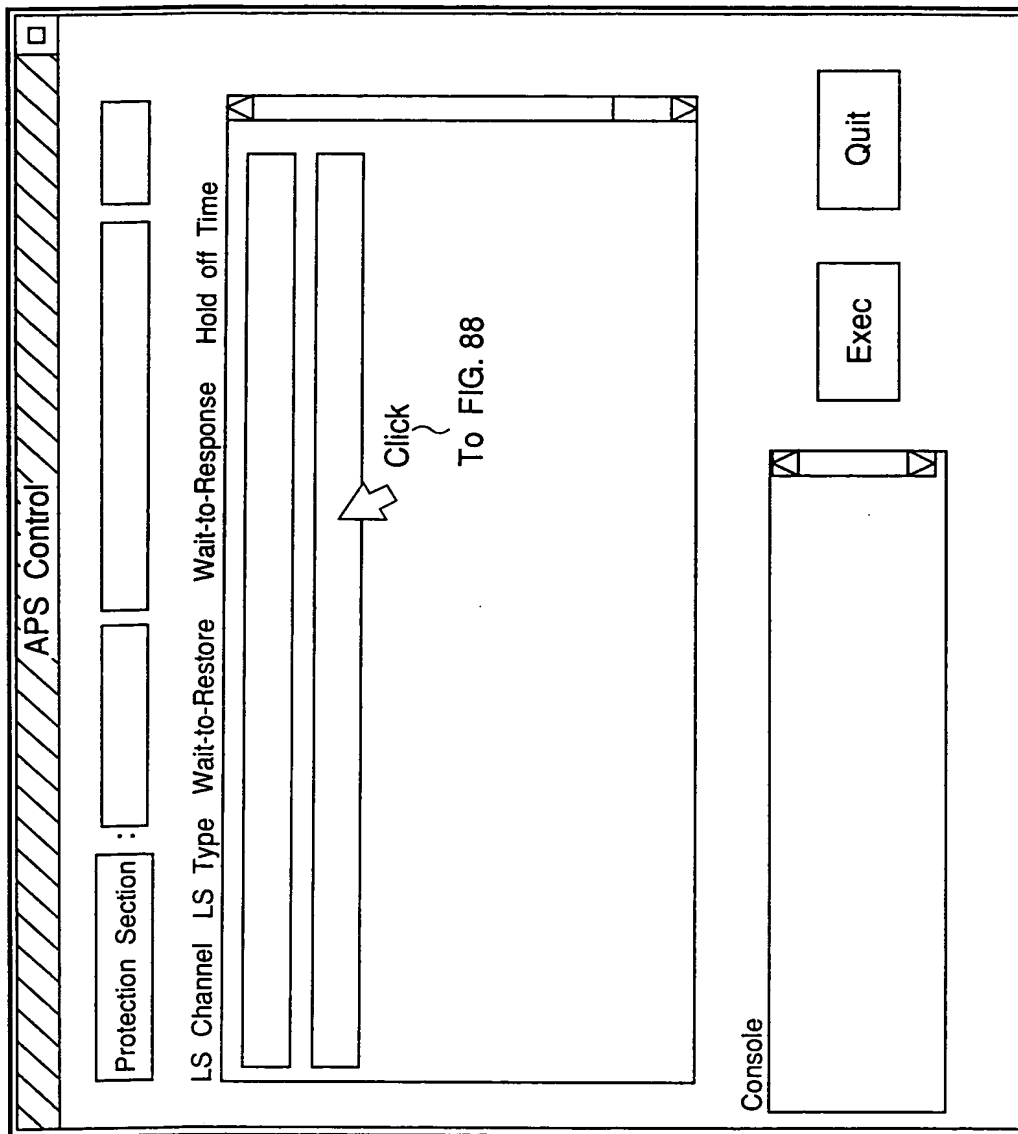


FIG. 86

67/104

Protection Section Selection

Section : ☐ HS ☒ LS

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

Ring Network # 01

NODE : NODE # 01

LS Shelf : All

Exec

Cancel

FIG. 87

68/104

APS Setting	
LS Channel : LS 1	
LS Type : [0 : 1]	[0 : 1]
Wait-to-Restore Time : [50]	[50] [Minute] [Minute]
(Minute : 5 - 60 Hour : 1 - 24 Day : 1 - 30)	
Wait-to-Response Time : [2000]	[2000] X 10msec
(5 - 2000)	
Hold off Time : [100]	[100] [X 10msec] [X 10msec]
(Sec:0-10 X 10msec : 0-100)	
Exec	Cancel

FIG. 88

69/104

Protection Switching Control

Switching Section : [] [] []

Section : LS 1 - LS 64
Service Traffic : PRT

Section : LS 65 - LS 128
PRT

Control Section : ☒ LS 1 - LS 64 ☐ LS 65 - LS 128

Switch Type Control :

Action : ☒ Invoke ☐ Release

Console

Exec Quit

FIG. 89

70/104

Switching Section Selection

Station/Ring Network : ☒ All ☐ Station ☐ Ring Network

Ring Network #01 ▼

NODE : NODE#01 ▼

Section : ☐ LS ☐ HS ☒ Equipment

LS Channel : LS1 ▼

Exec

Cancel

FIG. 90

71/104

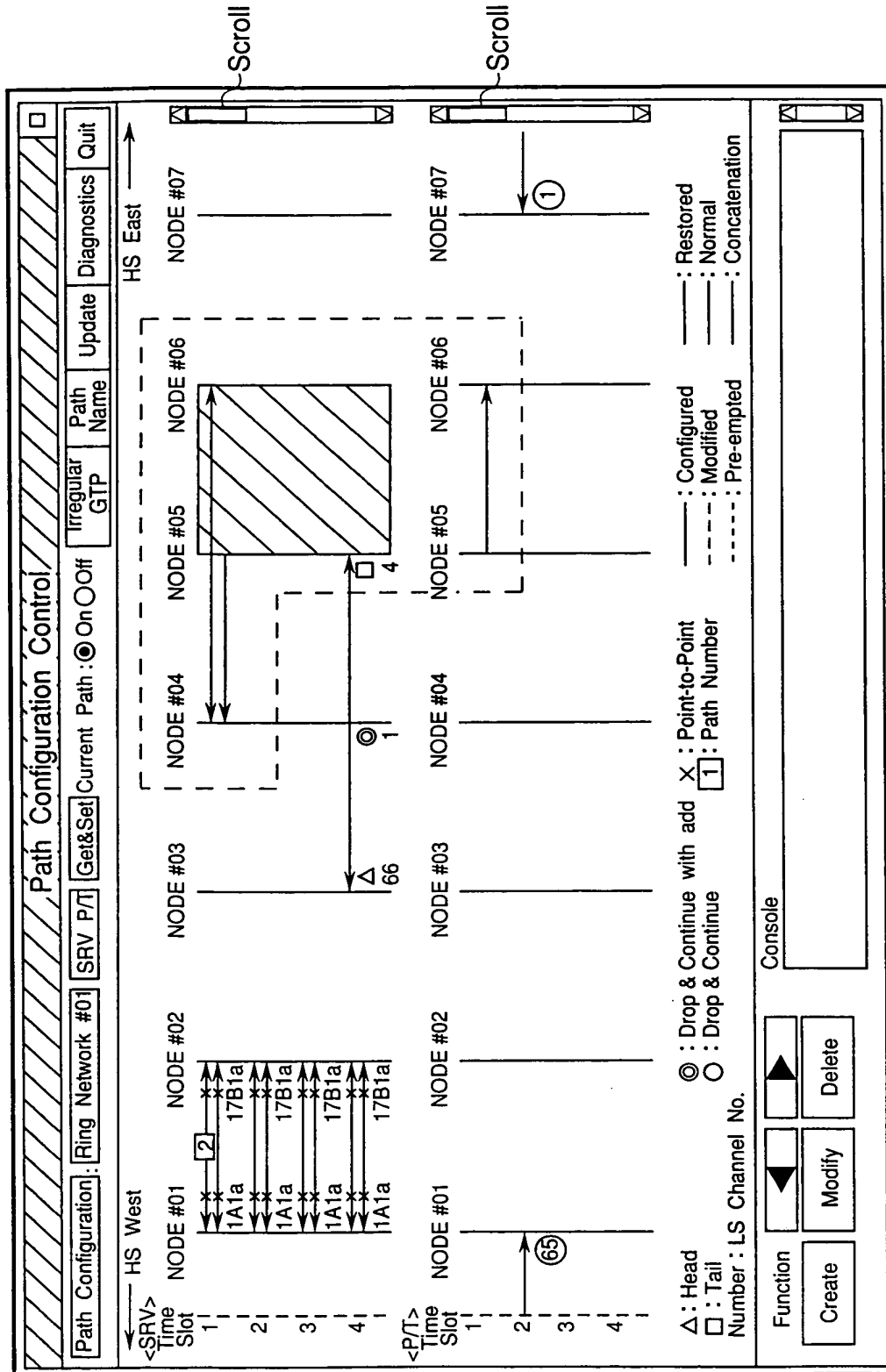
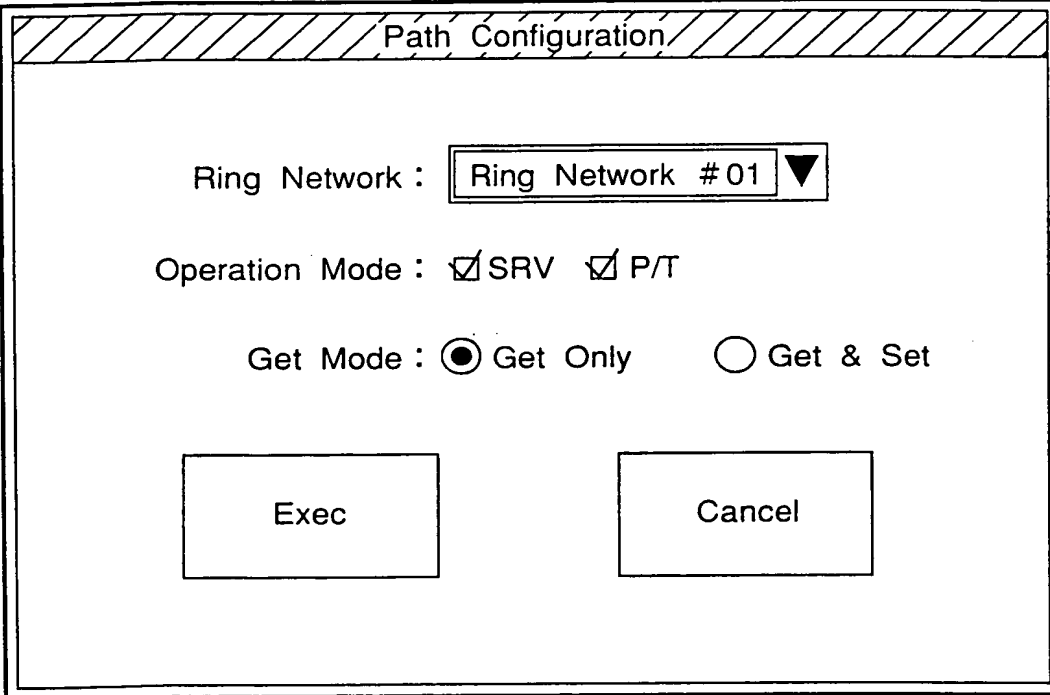


FIG. 91

72/104



The image shows a graphical user interface window titled "Path Configuration". The window has a title bar with diagonal hatching. Inside the window, there are three lines of configuration options. The first line is "Ring Network :" followed by a dropdown menu showing "Ring Network #01" and a downward arrow. The second line is "Operation Mode :" followed by two checked checkboxes, "SRV" and "P/T". The third line is "Get Mode :" followed by two radio buttons; the first is selected and labeled "Get Only", and the second is labeled "Get & Set". At the bottom of the window, there are two rectangular buttons: "Exec" on the left and "Cancel" on the right.

Path Configuration

Ring Network : Ring Network #01 ▼

Operation Mode : ☒ SRV ☒ P/T

Get Mode : ☒ Get Only ☐ Get & Set

Exec Cancel

FIG. 92

73/104

Path Update												
Operation Mode : SRV		Time Slot No. : 1										
<div> <div>← HS West</div> <div> <div>NODE #01</div> <div>1A1a</div> <div>×</div> </div> <div> <div>NODE #02</div> <div>17B1a</div> <div>△</div> </div> </div>		<div> <div>NODE #03</div> <div>○</div> </div>		<div> <div>NODE #04</div> <div>○</div> </div>		<div> <div>NODE #05</div> <div>○</div> </div>		<div> <div>NODE #06</div> <div>○</div> </div>		<div> <div>NODE #07</div> <div>○</div> </div>		<div>→ HS East</div>
<div> <div>Click ~ To FIG. 94</div> <div> <div>△ : Head</div> <div>×</div> </div> <div> <div>□ : Tail</div> <div>○ : Drop & Continue</div> </div> <div> <div>Number : LS Channel No.</div> <div> <div>⊙ : Drop & Continue with Add</div> <div>a : AU-4-4c b : AU-4-16c</div> </div> </div> </div>												
<div>Select Node.</div> <div> <div>Exec</div> <div>Cancel</div> </div>												

FIG. 93

Node Information

NODE #02

HS West

Edit Type : ☒ Modify ☐ Revoke

LS Channel :

LS 1A1

Concatenation Type : ☐ AU-4 ☒ AU-4-4c ☐ AU-4-16c ☐ AU-4-64c

Node Type :

☐ Point-to-Point

Exec

Cancel

FIG.94

Path Name Update

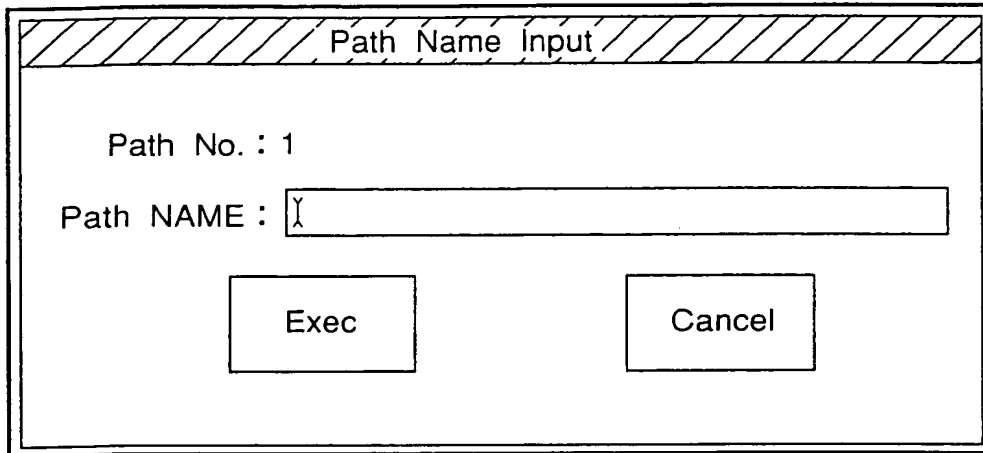
Path No.	Path Name

Click and move to FIG. 106

Quit

FIG. 95

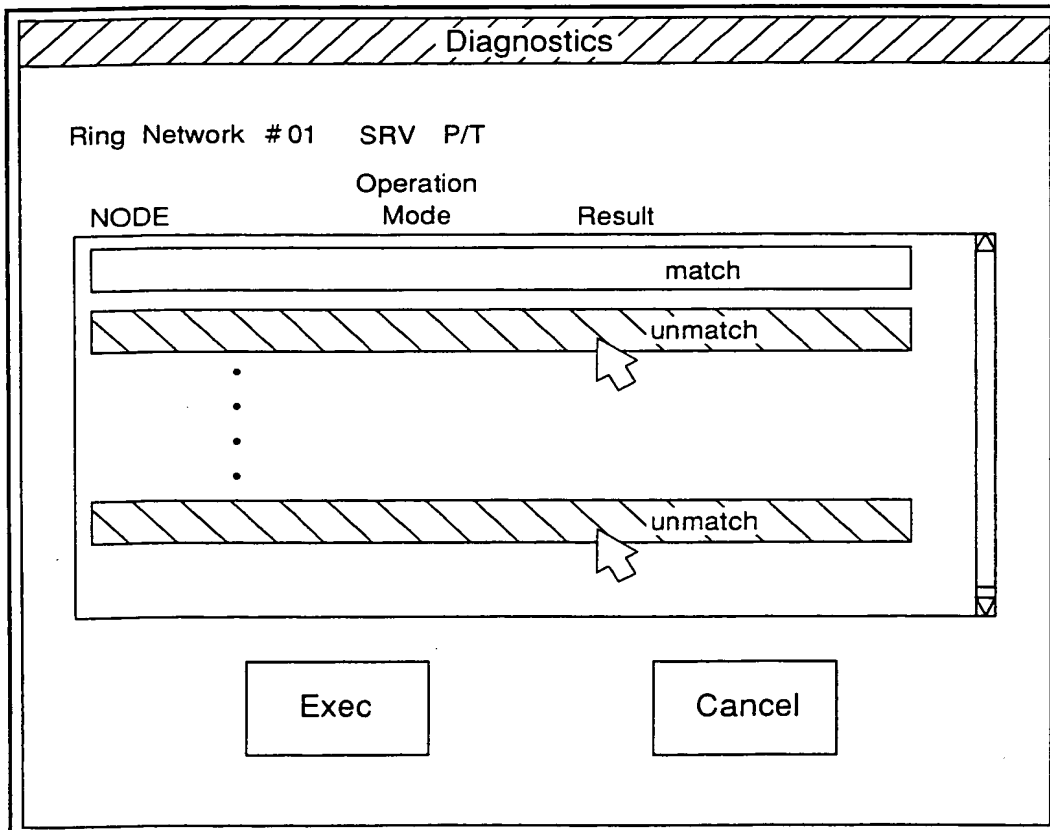
76/104



A dialog box titled "Path Name Input" with a hatched header bar. Inside, it displays "Path No. : 1" and "Path NAME : " followed by a text input field containing a cursor. At the bottom are two buttons: "Exec" and "Cancel".

Path Name Input	
Path No. : 1	
Path NAME :	<input type="text"/>
Exec	Cancel

FIG. 96



A dialog box titled "Diagnostics" with a hatched header bar. It displays "Ring Network #01 SRV P/T" and a table with columns "NODE", "Operation Mode", and "Result". The table contains three rows: the first row has a white background and "match"; the second and third rows have hatched backgrounds and "unmatch". A mouse cursor points to the "unmatch" result in the second row. Below the table are two buttons: "Exec" and "Cancel".

Diagnostics		
Ring Network #01 SRV P/T		
NODE	Operation Mode	Result
		match
		unmatch
		unmatch

Exec Cancel

FIG. 97

FIG. 98

78/104

Protection Status Information			
Ring Network # 01	Direction Mode	Ring Map Administrative State	Equipment Protection Status
NODE			

Quit

FIG. 99

79/104

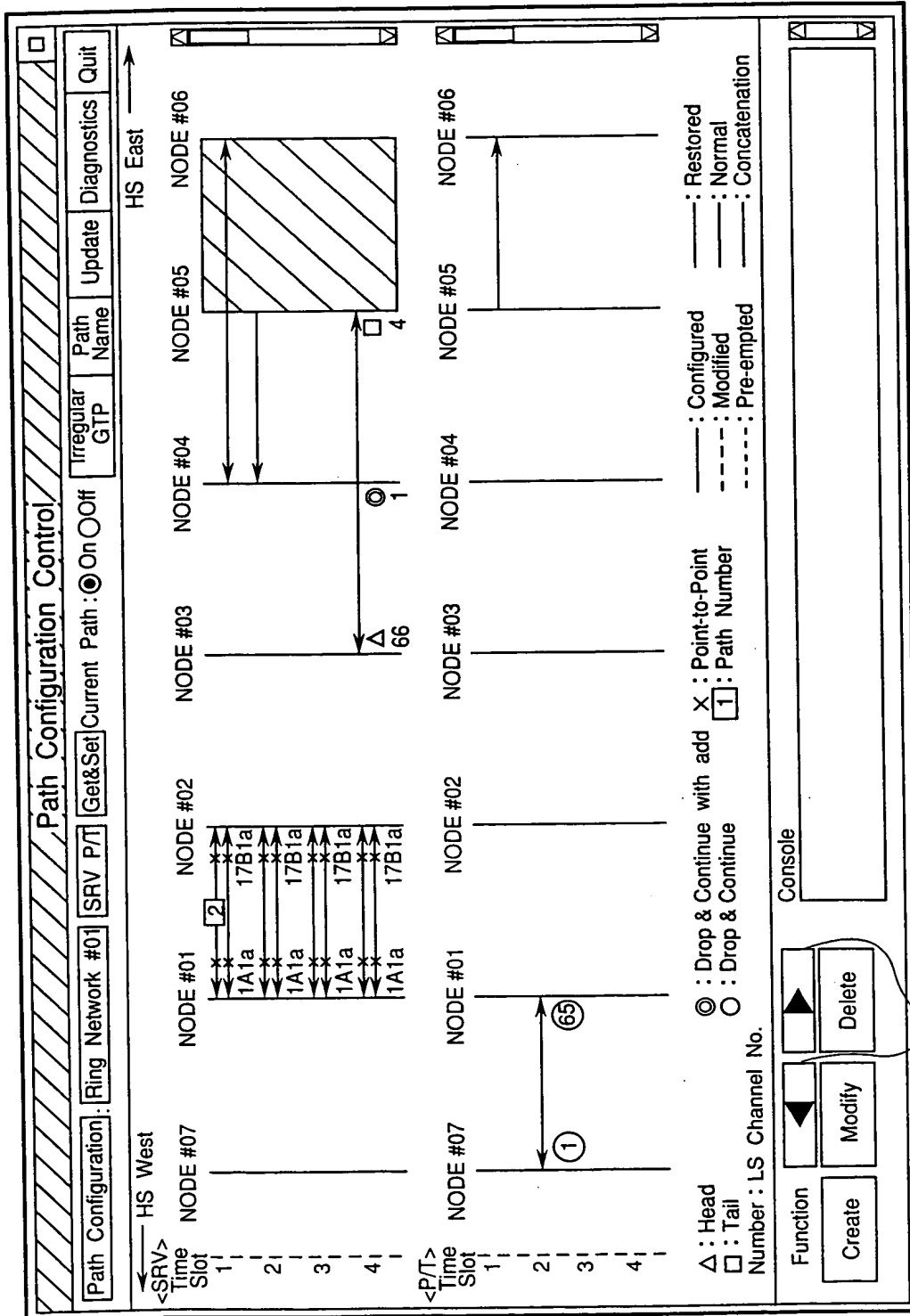


FIG. 100

80/104

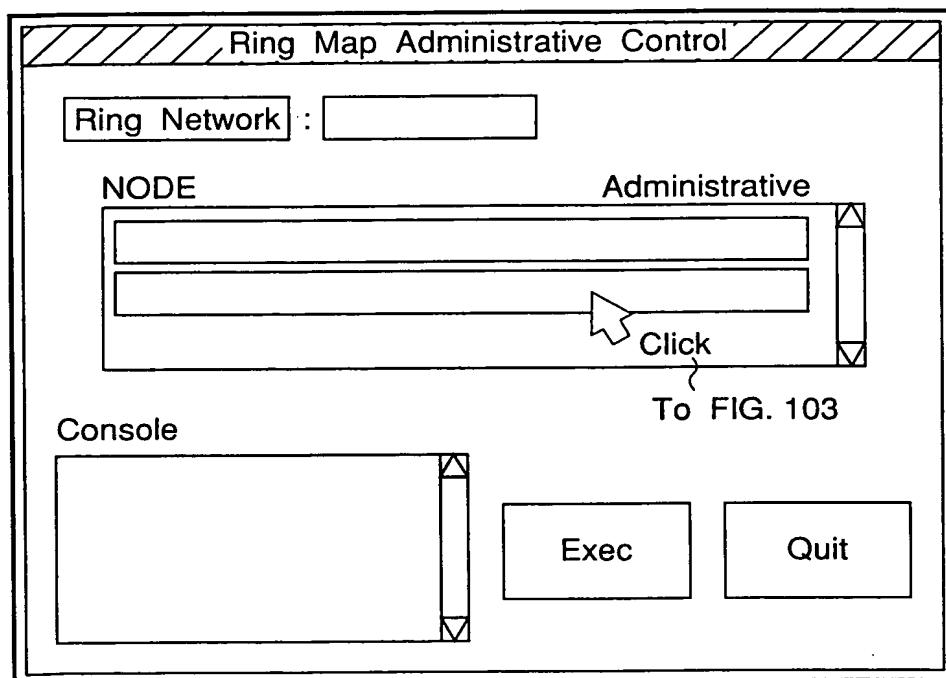
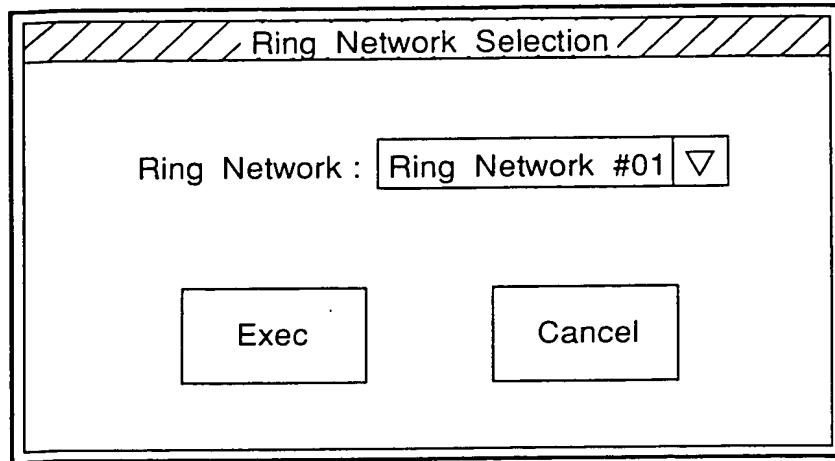


FIG. 101

81/104



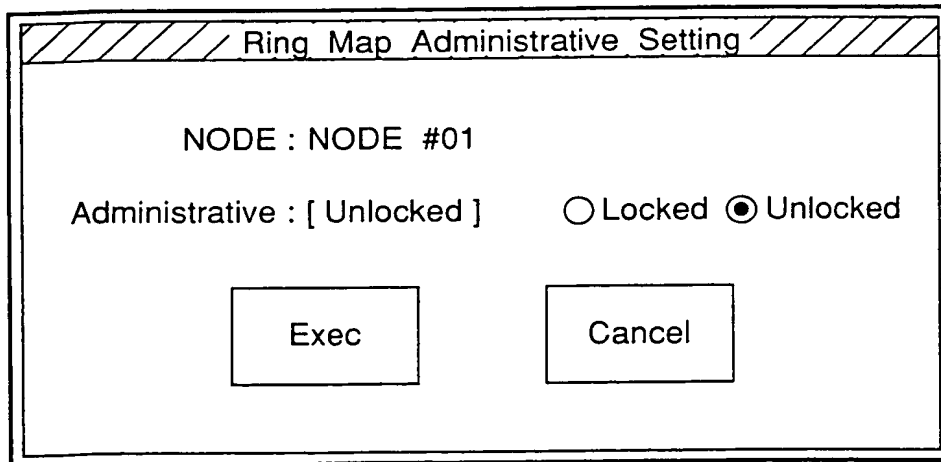
A dialog box titled "Ring Network Selection" with a hatched header bar. Inside, the text "Ring Network :" is followed by a text box containing "Ring Network #01" and a dropdown arrow. Below this are two buttons: "Exec" and "Cancel".

Ring Network Selection

Ring Network : Ring Network #01 ▾

Exec Cancel

FIG. 102



A dialog box titled "Ring Map Administrative Setting" with a hatched header bar. Inside, the text "NODE : NODE #01" is displayed. Below it, the text "Administrative : [Unlocked]" is followed by two radio buttons: "Locked" (unselected) and "Unlocked" (selected). At the bottom are two buttons: "Exec" and "Cancel".

Ring Map Administrative Setting

NODE : NODE #01

Administrative : [Unlocked] ☐ Locked ☒ Unlocked

Exec Cancel

FIG. 103

82/104

NODE Timing mode Control

Station/Ring Network :

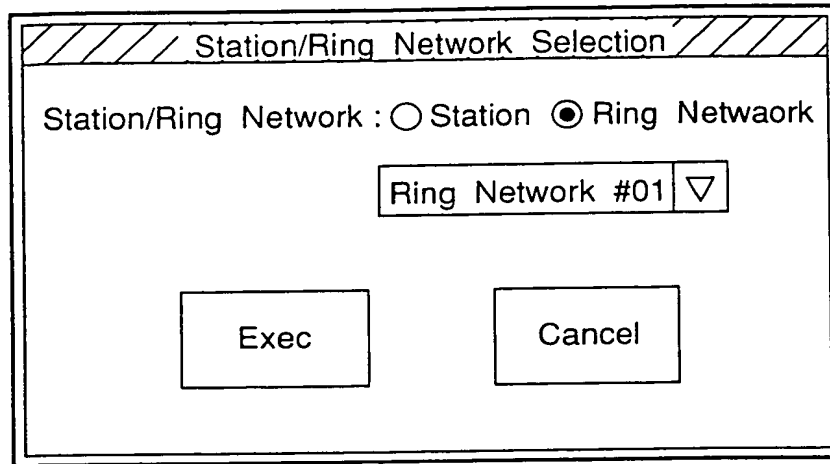
NODE	System Timing Mode	Clock	Card	Mode	Select	SYNC	Reference Clock(WEST)	Reference Clock(EAST)	Receiving S1	Transmitting S1	Transmitting S1
Click and move to FIG. 106											

Console

Exec Quit

FIG. 104

83/104



A dialog box titled "Station/Ring Network Selection" with a hatched title bar. It contains a label "Station/Ring Network :" followed by two radio buttons: "Station" (unselected) and "Ring Netwaork" (selected). Below this is a text box containing "Ring Network #01" and a dropdown arrow. At the bottom are two buttons: "Exec" and "Cancel".

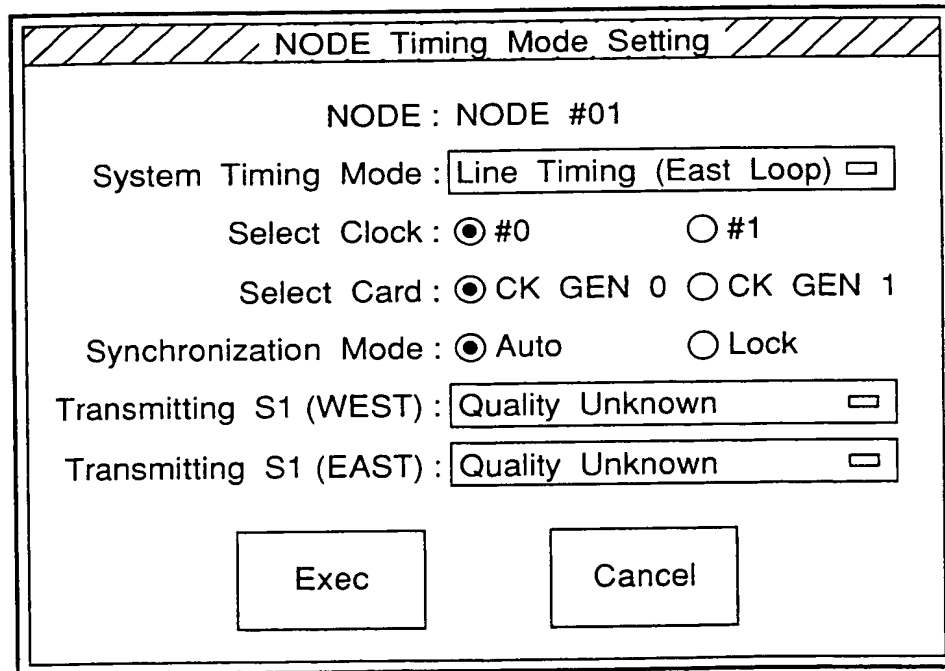
Station/Ring Network Selection

Station/Ring Network : ☐ Station ☒ Ring Netwaork

Ring Network #01 ▾

Exec Cancel

FIG. 105



A dialog box titled "NODE Timing Mode Setting" with a hatched title bar. It contains the text "NODE : NODE #01". Below is a label "System Timing Mode :" followed by a text box containing "Line Timing (East Loop)" and a dropdown arrow. Then are two labels: "Select Clock :" with radio buttons "#0" (selected) and "#1" (unselected); and "Select Card :" with radio buttons "CK GEN 0" (selected) and "CK GEN 1" (unselected). Then is a label "Synchronization Mode :" with radio buttons "Auto" (selected) and "Lock" (unselected). Below are two labels: "Transmitting S1 (WEST) :" followed by a text box containing "Quality Unknown" and a dropdown arrow; and "Transmitting S1 (EAST) :" followed by a text box containing "Quality Unknown" and a dropdown arrow. At the bottom are two buttons: "Exec" and "Cancel".

NODE Timing Mode Setting

NODE : NODE #01

System Timing Mode : Line Timing (East Loop) ▾

Select Clock : ☒ #0 ☐ #1

Select Card : ☒ CK GEN 0 ☐ CK GEN 1

Synchronization Mode : ☒ Auto ☐ Lock

Transmitting S1 (WEST) : Quality Unknown ▾

Transmitting S1 (EAST) : Quality Unknown ▾

Exec Cancel

FIG. 106

84/104

FIG. 107 is a menu titled "NODE Function". It contains three rectangular buttons arranged vertically: "LS Card Control", "Notification Reporting Control", and "Quit".

FIG. 107

FIG. 108 is a window titled "LS Card Control". It contains the following elements:

- Action :** A dropdown menu showing "To STM-4".
- Station/Ring Network :** Radio buttons for "All", "Station", and "Ring Network" (which is selected).
- Ring Network :** A dropdown menu showing "Ring Network #01".
- NODE :** A dropdown menu showing "NODE #05".
- LS Shelf :** A dropdown menu showing "LS #1".
- LS Card :** A dropdown menu showing "LS1 SRV".
- Console :** A large rectangular area with a vertical scrollbar on the right side.
- Buttons :** Two buttons labeled "Exec" and "Quit" are located at the bottom right of the window.

FIG. 108